



PLATFORM

PRESENTED BY DINIS CRUZ  
LONDON UK – THURSDAY, SEPTEMBER 3 2009

before we start



# my dedication to OWASP :)

I returned 3 days earlier from Portugal to participate on London Chapter event

... kids were not impressed (photo before boarding plane 5 hours ago) ...





# OBJECTIVE OF TODAY'S SESSION

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## WHAT AM I DOING HERE?

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- I'm making the business case for you to:

**focus,**

**invest time & resources,**

**use,**

**contribute** and maybe even

**sponsor**

the **OWASP O2 Platform** project



# WHAT IS ②?

and the OWASP O2 PLATFORM

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is an:

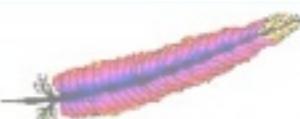
# OPEN PLATFORM.



open source

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for

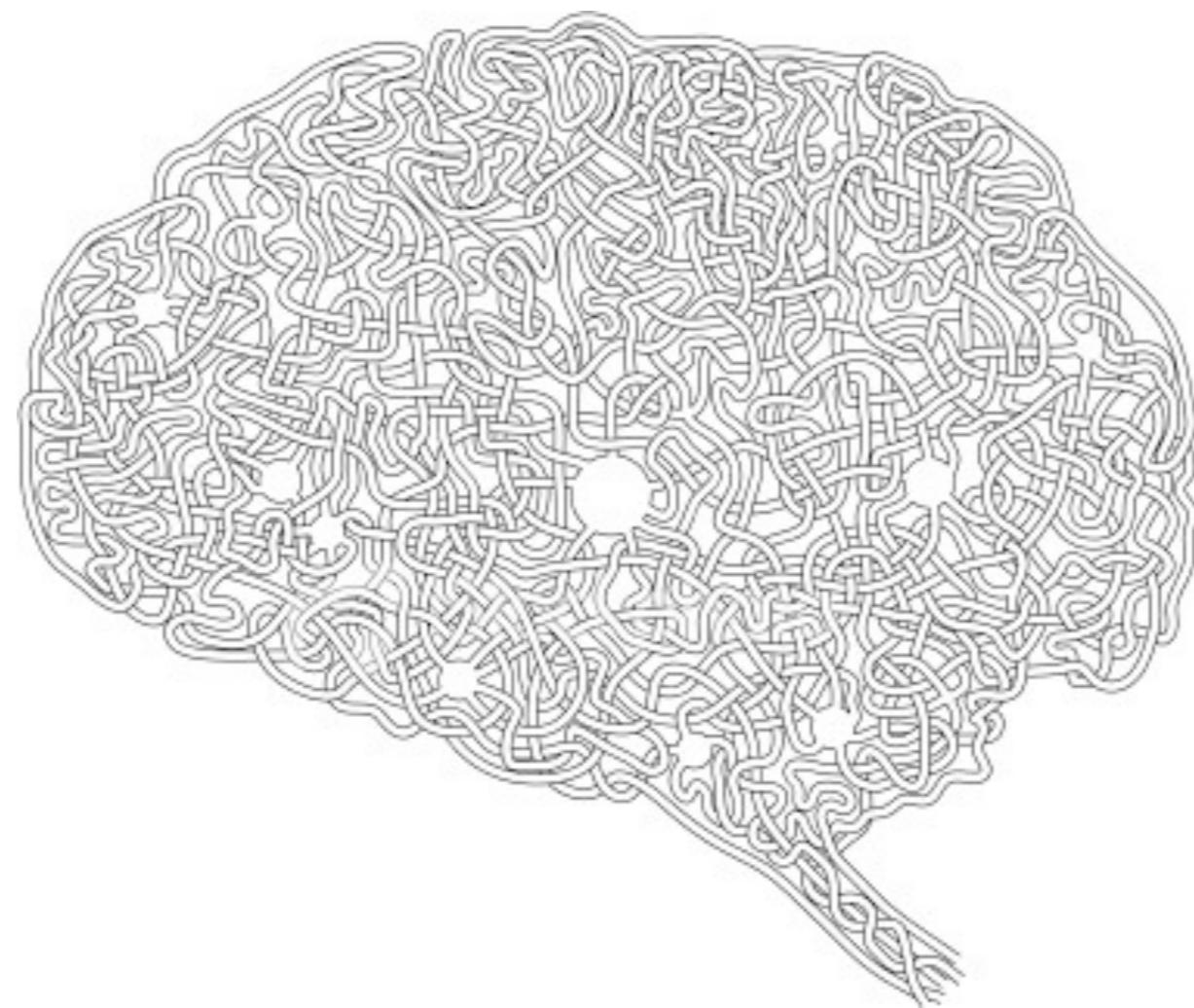
AUTOMATING.



# APPLICATION SECURITY.



# KNOWLEDGE.



and

# WORKFLOWS.



② is an:

OPEN PLATFORM  
for  
AUTOMATING  
APPLICATION SECURITY  
KNOWLEDGE  
and  
WORKFLOWS



... and when you start using it ...



... you will be able to do impossible things ...



and your clients will love you

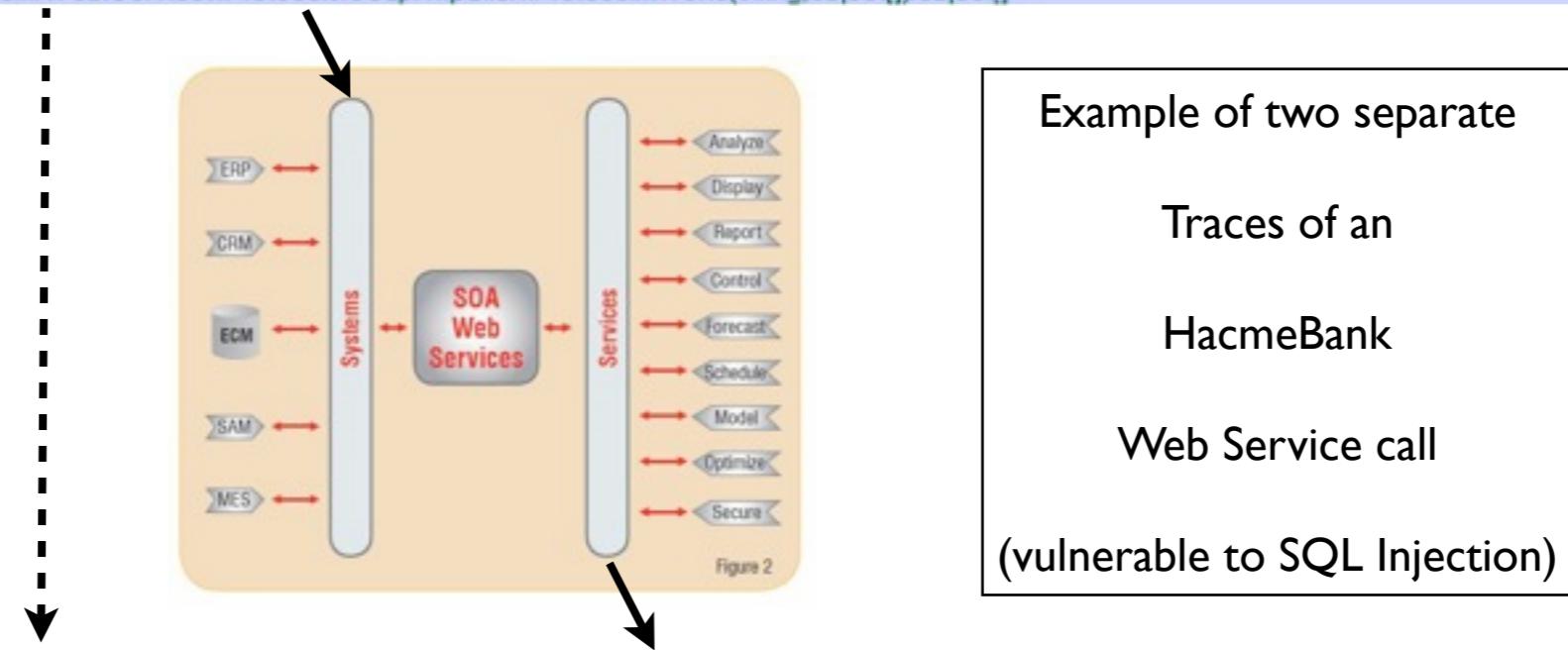


# 'Joined trace' example (before):

```

└ HacmeBank_v2_Website.aspx.AccountTransfer.Page_Load(object;System.EventArgs):void
  └ System.Web.UI.UserControl.get_Session():System.Web.SessionState.HttpSessionState
    └ System.Web.SessionState.HttpSessionState.get_Item(string):object
      └ System.Object.ToString():string
        └ HacmeBank_v2_Website.Gui.populateDropDownListWithListOfUserAccounts(System.Web.UI.WebControls.DropDownList:string):void
          └ HacmeBank_v2_Website.AccountManagement.WS_GetUserAccounts_using_UserID(string:string):object[]
            └ HacmeBank_v2_Website.WS_AccountManagement.WS_AccountManagement.GetUserAccounts_using_UserID(string:string):object[]
              └ System.Web.Services.Protocols.SoapHttpClientProtocol.Invoke(string:object[]):object[]

```



```

└ HacmeBank_v2_WS.WS_AccountManagement.GetUserAccounts_using_UserID(string:string):System.Collections.ArrayList
  └ HacmeBank_v2_WS.DataFactory.GetUserAccounts_using(userID:string):System.Collections.ArrayList
    └ System.String.Concat(string:string):string
      └ HacmeBank_v2_WS.SqlServerEngine.returnArrayListFromSQLQuery_containing_FirstFieldFromAllRows(string):System.Collections.ArrayList
        └ HacmeBank_v2_WS.SqlServerEngine.executeSQLCommand_returnSqlDataReader(string):System.Data.SqlClient.SqlDataReader
          └ System.Data.SqlClient.SqlCommand.SqlCommand(string:System.Data.SqlClient.SqlConnection):void
            └ System.Data.SqlClient.SqlCommand.ExecuteReader():System.Data.SqlClient.SqlDataReader

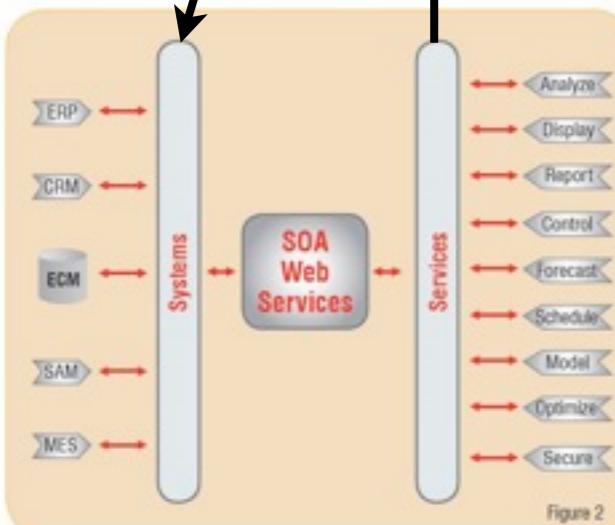
```

# 'Joined trace' example (after):

```

- HacmeBank_v2_Website.aspx.AccountTransfer.Page_Load(object;System.EventArgs):void
  - System.Web.UI.UserControl.get_Session():System.Web.SessionState.HttpSessionState
    - System.Web.SessionState.HttpSessionState.get_Item(string):object
      - System.Object.ToString():string
        - HacmeBank_v2_Website.Gui.populateDropDownListWithListOfUserAccounts(System.Web.UI.WebControls.DropDownList:string):void
          - HacmeBank_v2_Website.AccountManagement.WS_GetUserAccounts_using_UserID(string:string):object[]
            - HacmeBank_v2_Website.WS_AccountManagement.GetUserAccounts_using_UserID(string:string):object[]
              - System.Web.Services.Protocols.SoapHttpClientProtocol.Invoke(string:object[]):object[]
                - HacmeBank_v2_WS.WS_AccountManagement.GetUserAccounts_using_UserID(string:string):System.Collections.ArrayList
                  - HacmeBank_v2_WS.DataFactory.GetUserAccounts_using(userID:string):System.Collections.ArrayList
                    - System.String.Concat(string:string):string
                      - HacmeBank_v2_WS.SqlServerEngine.returnArrayListFromSQLQuery_containing_FirstFieldFromAllRows(string):System.Collections.ArrayList
                        - HacmeBank_v2_WS.SqlServerEngine.executeSQLCommand_returnSqlDataReader(string):System.Data.SqlClient.SqlDataReader
                          - System.Data.SqlClient.SqlCommand.SqlCommand(string:System.Data.SqlClient.SqlConnection):void
                            ... System.Data.SqlClient.SqlCommand.ExecuteReader():System.Data.SqlClient.SqlDataReader

```



Example of a single  
 'Joined Trace' of the same  
 HacmeBank  
 Web Service call  
 (vulnerable to SQL Injection)



# TECHNOLOGIES SUPPORTED by O2

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## Supported Technologies

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- **Ounce Labs Scanner:** (FULL Support): scanning, CIR consumption, rules creation, open & save findings format). Languages: .NET, Java, C/C++, ASP Classic, VB 6.0
- **IBM AppScan Developer Edition:** open findings format. Language: Java
- **Microsoft CAT.NET scanner:** scanning, open findings format. Language: .NET (C#, VB.net, Iron Phyton, etc...)
- **FindBugs scanner:** open findings format. Language: Java
- **OWASP CodeCrawler:** open findings format. Language: .NET
- **Fortify (very early stages) :** open findings format (FVDL). Language: .NET, Java, C/C ++, etc..
- **.NET** - create CIR, create call flow traces, create run-time traces
- **Java** - create CIR, create call flow traces
- **Spring MVC ‘Annotation Based Controllers’** - Model controllers behavior, drive BlackBox tests



## So what can O2 do for Advanced Users

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- This is for users who know what they (technically) want do
- These are the users that ALL/MOST tool vendors don't cater for today (since they are not a big enough market)
- The following (are some of the) problems that O2 has solutions for:
  - Advanced findings filtering (for example query 50M to 500Mb assessment files)
  - Visualizing traces
  - Mass rule creation & management
  - “Rules Driven Scans”
  - Creating ALL Traces
  - Joining and Manipulating Traces
  - Scripting questions and workflows (on top of rich objects like CirData, Findings or Rules)
  - Gain visibility into Frameworks
  - Understand and exploit Spring MVC apps
  - Integrate complex workflows with SDLs
  - Do Virtual Patching
  - Quickly Write PoCs and exploits using O2’s .NET’s power Debugger
  - Create “Run-time traces”
  - Write Unit Tests for PoCs
  - Find (via instrumenting and automating the security consultant’s brain) all sorts of application security issues (like to ones in the OWASP Top 10)
  - Start venturing into Source-Code-Fixing for vulnerabilities found
  - Start venturing into auto-writing WAF rules for vulnerabilities found



# O2 MODULES

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## O2 MODULES - DEVELOPMENT STATE

### ACTIVE

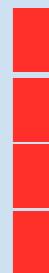
- O2 Tool - Findings Viewer
- O2 Tool - CirViewer
- O2 Tool - Rules Manager
- O2 Cmd - Findings Filter
- O2 Cmd - Spring MVC
- O2 Tool - Join Traces
- O2 Debugger Mdbg
- O2 Tool - CSharpScripts
- O2 Scanner - MsCatNet
- O2 Tool - Host Local Website
- O2 Tool - Java Execution
- O2 Tool - O2 Scripts
- O2 Tool - Python
- O2 Tool - Search Engine

### LEGACY

- O2 Scanners
- O2 Tool - DotNet Callbacks Maker
- O2 Tool - Findings Query
- O2 Tool - Search Assessment Run
- O2 Tool - View Assessment Run
- O2 Tool - WebInspect Converter

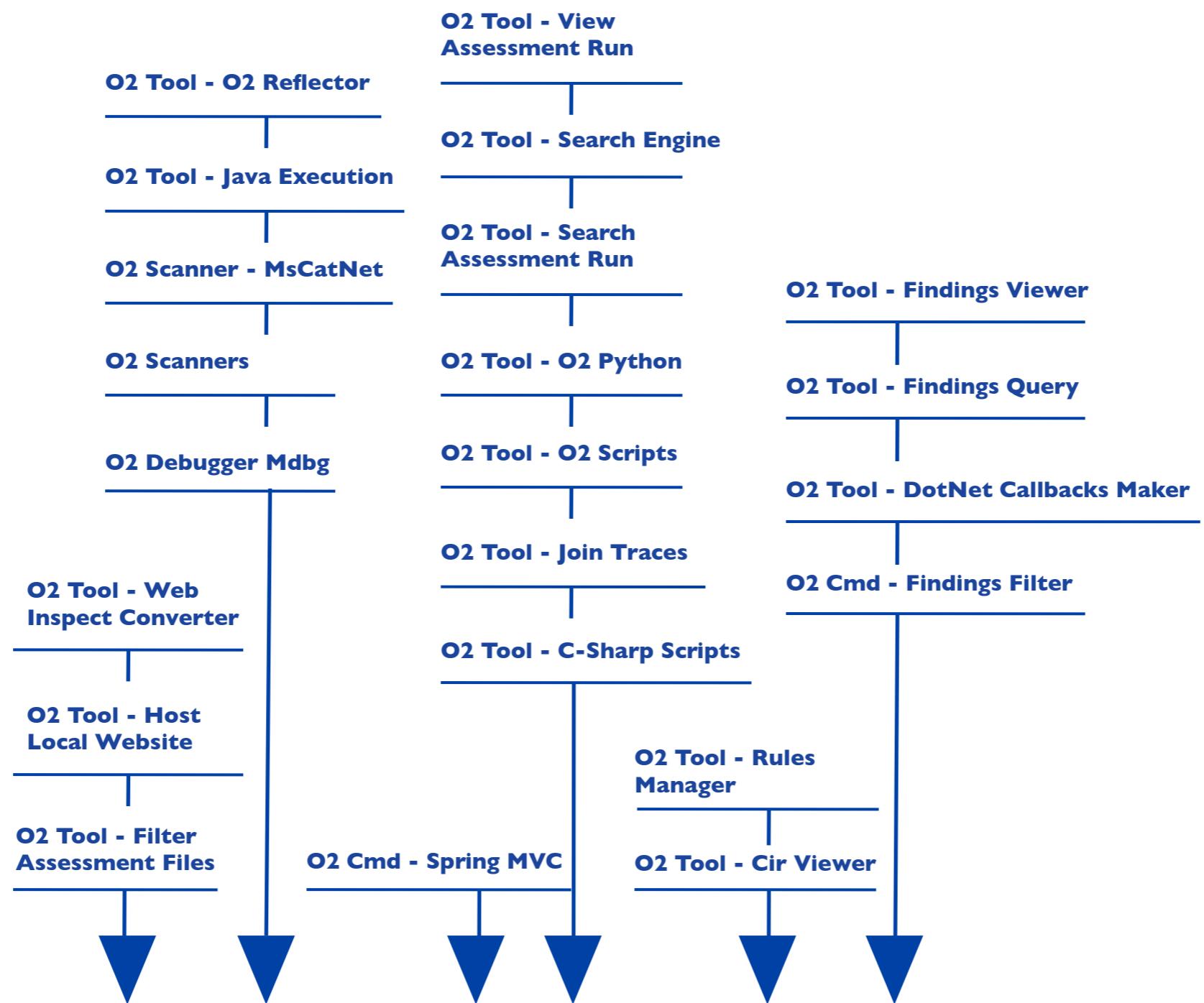
Vaporware

- O2 Tool - Filter Assessment Files
- O2 Tool - O2 Reflector





## O2 MODULES - MATURITY



UNSOVED  
PROBLEM

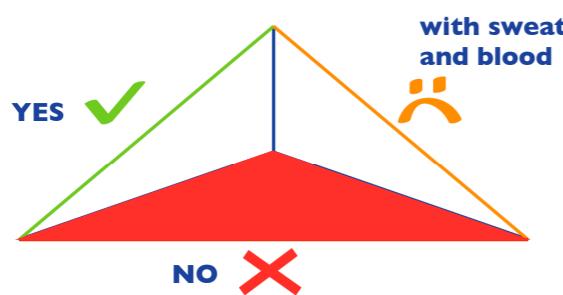
SOLVED

PROTOTYPE

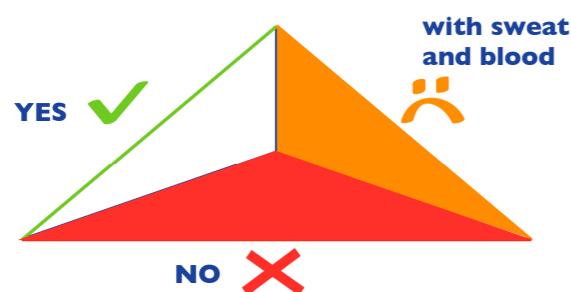
VERSION 1.0

## O2 MODULES - FEATURE COMPARISON WITH OSA

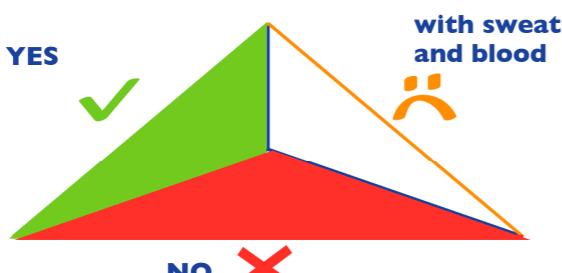
- This graph maps the module's features to the current version of Ounce's 6.x OSA (Ounce Security Analyst)



- O2 Tool - Rules Manager
- O2 Tool - CirViewer
- O2 Cmd - Spring MVC
- O2 Debugger Mdbg
- O2 Tool - CSharpScripts
- O2 Scanner - MsCatNet
- O2 Tool - Host Local Website
- O2 Tool - Java Execution
- O2 Tool - Join Traces
- O2 Tool - O2 Reflector
- O2 Tool - O2 Scripts
- O2 Tool - Python
- O2 Tool - WebInspect Converter



- O2 Tool - Findings Viewer
- O2 Cmd - Findings Filter
- O2 Tool - Findings Query
- O2 Tool - DotNet Callbacks Maker
- O2 Tool - Filter Assessment Files
- O2 Tool - Search Engine
- O2 Tool - Search Assessment Run
- O2 Tool - View Assessment Run

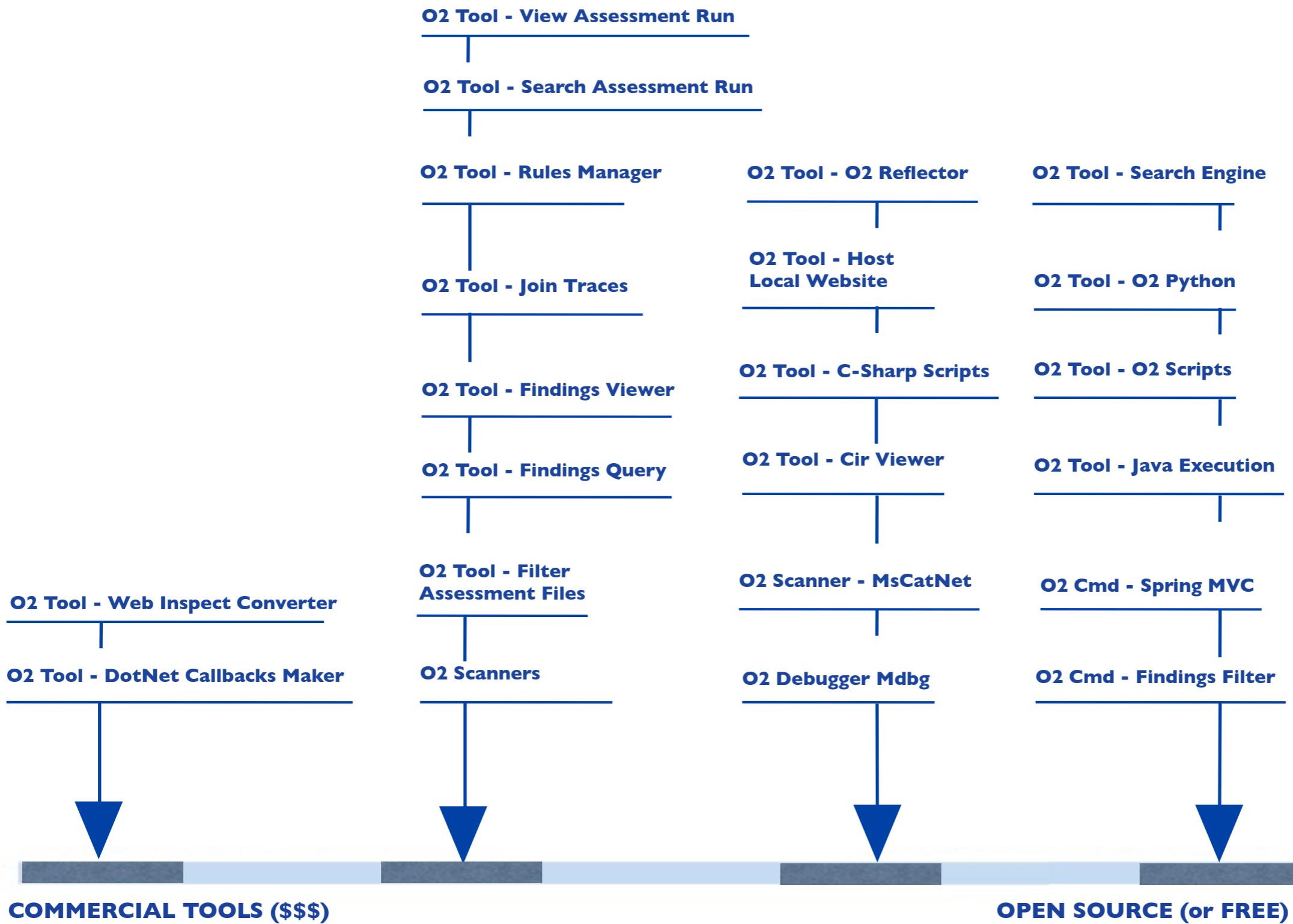


- O2 Scanners





## O2 MODULES - COMMERCIAL SOFTWARE DEPENDENCIES





# O2 MODULES DETAILS

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## ACTIVE O2 MODULES (6X)

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see presentation

<http://www.o2-ounceopen.com/files-binaries-source-and-demo/old-documents-and-presentations/O2%20Modules%20Presentation%20V1.0.pdf>

for individual slides with O2 Modules details

## ACTIVE O2 MODULES (6X)

**ACTIVE**

**MODULE:**

MAIN GUI



Two screenshots of the O2 Cmd - Findings Filter user interface, showing a list of findings and a detailed view of a specific finding.

**O2 Cmd - Findings Filter**

**DESCRIPTION**  
 This O2 module shows how command line tools can be easily created to provide specific functionality (based on business requirements) which can then be easily integrated on an SDL.  
 This module takes advantage of the highly flexible O2 Findings Object model. A GUI is provided to execute and customize the implemented filters.

**KEY / UNIQUE FEATURES**

- Filters implemented: onlyTraces, noTraces, allFindings, onlyHighs, onlyVulnerabilities, oneFilePerConfidence, uniqueTraces
- Ability to create assessments files that can be published
- Ability to dynamically compile and execute custom filters

**USE CASES**

- SDL Integration
- Custom Findings Filtering

PRODUCTIZATION READINESS

UNRESOLVED PROBLEM	HOLVED	PROTOTYPE
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CAN OSA DO THIS?


**COMMERCIAL SOFTWARE DEPENDENCIES:**  
 Consumes `o2asset` files created by Ounce (& others)

IBM / COMMERCIAL TOOL (FREE)

OPEN SOURCE (FREE)


**ROADMAP: NEXT DEVELOPMENT**

- Add support for the other 'O2 Supported' Scripting languages (IronPython, Jython, Java)
- Add more sample scripts
- Document functionality and O2's command line tools architecture
- Fix bug with Unique Traces filter (as reported by Eduardo)
- Run on Mono (& Linux and Mac)



see presentation

<http://www.o2-ounceopen.com/files-binaries-source-and-demo/old-documents-and-presentations/O2%20Modules%20Presentation%20V1.0.pdf>  
 for individual slides with O2 Modules details

## ACTIVE O2 MODULES (6X)

**ACTIVE**

**MAIN GUI**



**MODULE:** **O2 Cmd - Findings Filter**

**DESCRIPTION**  
This O2 module allows basic command line tools can be easily created to analyze

**MODULE:** **O2 Cmd - Spring MVC**

**DESCRIPTION**  
Specifically targeted at the Java Spring MVC framework, this module is able to analyze an application written under this framework and extract its attack surface and exposed internal objects.  
In addition to powerful visualization tools for the data collected, this module also contains a simple 'analysis engine' which creates Spring MVC related Findings

**KEY / UNIQUE FEATURES**

- Supports and understand Spring MVC's Java Annotations: @Controller, @ModelAttribute, @RequestParam
- Creates complete representations of Spring MVC **bound** objects
- Creates Findings with references to controller's source code
- Loads \*.class, \*.jar and \*.war files
- Security review of Spring MVC Application

**USE CASES**

- Security review of Spring MVC Application

**GEEK-O-METER**



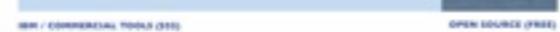
**PRODUCTIZATION READINESS**

UNRESOLVED PROBLEMS	SOLVED	PROTOTYPE
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**CAN OSA DO THIS?**



**COMMERCIAL SOFTWARE DEPENDENCIES:**



IBM / COMMERCIAL TOOLS (335)      OPEN SOURCE (FREE)

**ROADMAP: NEXT DEVELOPMENT**

- Add support for other Spring MVC binding
- Export URL mappings for consumption by other tools (AppScan, O2 Join Traces)
- Map current controllers mappings into joined findings
- Add support for auto unit test creation & execution



see presentation

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## ACTIVE O2 MODULES (6X)

**ACTIVE**

**MAIN GUI**







**MODULE: O2 Cmd - Findings Filter**

**DESCRIPTION**  
This O2 module allows users to search and analyze log files from various sources.

**MODULE: O2 Cmd - Spring MVC**

**DESCRIPTION**  
Specifically targeted at the Java Spring MVC framework, this module is able to...

**MODULE: O2 Debugger Mdbg**

**DESCRIPTION**  
Managed wrapper on top of Microsoft's managed debugger. This module allows the easy debugging of .NET applications (started or hooked into processes). The power of this module lies on the wrapping of the 'command line' Managed debugger interface into a GUI & a scriptable environment.

**KEY / UNIQUE FEATURES**

- Ability to 'Animate Tracing' (StepInto, StepOver, StepOut)
- Record traces, Modify values on breakpoints, view object model (via reflection) of running processes
- Mass breakpoint creation
- Allows easy exploit creation and auto-patching of vulnerabilities

**USE CASES**

- .NET framework debugging
- Vulnerability exploit writing

**GEEK-O-METER**



**PRODUCTIZATION READINESS**

UNRESOLVED PROBLEM	SOLVED	PROTOTYPE
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**CAN OSA DO THIS?**



**COMMERCIAL SOFTWARE DEPENDENCIES:**  
Free Microsoft Managed Debugger demo application

**ROADMAP: NEXT DEVELOPMENT**

- Implement the same capabilities for Java and Python
- Add ability to trace into unmanaged traces
- Improve trace creation process and data collection
- Improve patching & hooking workflow

see presentation

<http://www.o2-ounceopen.com/files-binaries-source-and-demo/old-documents-and-presentations/O2%20Modules%20Presentation%20V1.0.pdf>  
for individual slides with O2 Modules details

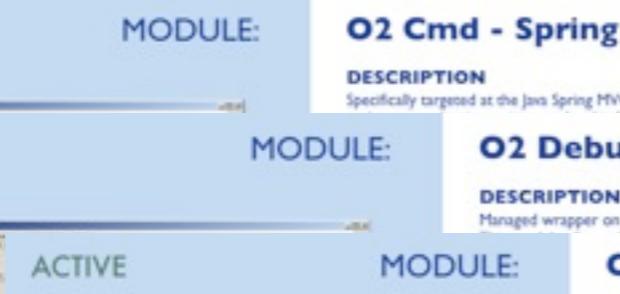
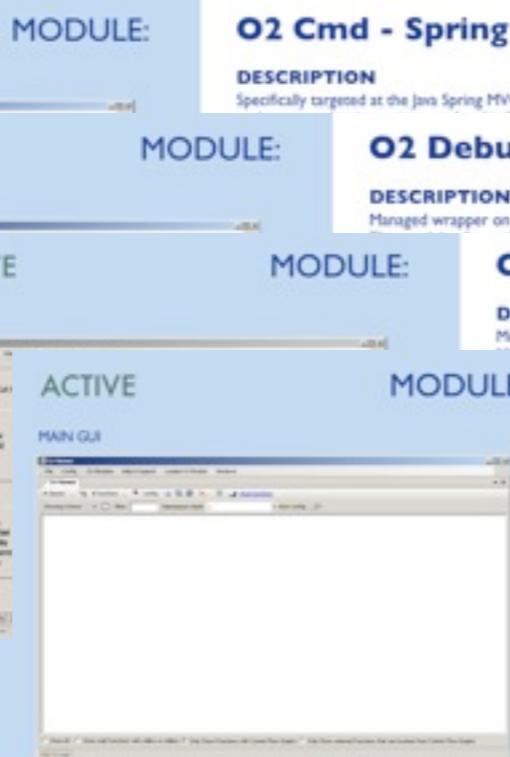
## ACTIVE O2 MODULES (6X)

ACTIVE	MODULE:	O2 Cmd - Findings Filter			
MAIN GUI	DESCRIPTION	This O2 module allows basic command line tools can be easily created to handle			
ACTIVE	MODULE:	O2 Cmd - Spring MVC			
MAIN GUI	DESCRIPTION	Specifically targeted at the Java Spring MVC framework, this module is able to			
ACTIVE	MODULE:	O2 Debugger Mdbg			
MAIN GUI	DESCRIPTION	Managed wrapper on top of Microsoft's managed debugger			
ACTIVE	MODULE:	O2 Scanner - MsCatNet			
MAIN GUI	DESCRIPTION	Module that allows the scanning of .NET applications using the freely available Microsoft's CAT.NET Scanner with the results being converted into the O2 Findings Format (o2afm compatible). This module allows CAT.NET users to benefit from O2's powerful findings filtering and manipulation.			
	KEY / UNIQUE FEATURES	<ul style="list-style-type: none"> <li>Ability to scan (recursively) entire directories</li> <li>Ability to convert CAT.NET results into O2 Findings Schema</li> <li>Uses the Firefox Engine to render the webpages shown when the user is asked to install CAT.NET</li> </ul>			
	USE CASES	<ul style="list-style-type: none"> <li>Scan of .NET projects by users with no access to Ounce 6.x</li> </ul>			
	PRODUCTIZATION READINESS	<table border="1"> <tr> <td>UNRESOLVED PROBLEM</td> <td>SOLVED</td> <td>PROTOTYPE</td> </tr> </table>	UNRESOLVED PROBLEM	SOLVED	PROTOTYPE
UNRESOLVED PROBLEM	SOLVED	PROTOTYPE			
	CAN OSA DO THIS?				
	COMMERCIAL SOFTWARE DEPENDENCIES:	Uses Microsoft's free <a href="#">Cat.NET</a> software			
	ROADMAP: NEXT DEVELOPMENT	<ul style="list-style-type: none"> <li>Map O2 rules format into CAT.NET (with both import and export capabilities)</li> <li>Add support to compile .NET solutions files from the GUI (this capability already exists in O2)</li> <li>Add more links to related Microsoft and <a href="#">CAT.NET</a> documentation</li> <li>Add visualization of for <a href="#">CAT.NET</a> created traces representation</li> </ul>			

see presentation

<http://www.o2-ounceopen.com/files-binaries-source-and-demo/old-documents-and-presentations/O2%20Modules%20Presentation%20V1.0.pdf>  
for individual slides with O2 Modules details

## ACTIVE O2 MODULES (6X)

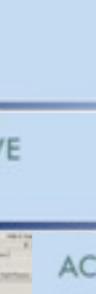
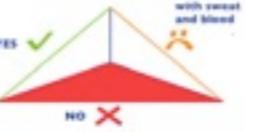
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ACTIVE	MODULE:	O2 Scanner - MsCatNet
MAIN GUI	DESCRIPTION	Module that allows the scanning of .NET applications using the freely available
		
ACTIVE	MODULE:	O2 Tool - Cir Viewer
MAIN GUI	DESCRIPTION	This module allows the creation (.NET) and visualization (all Ounce supported languages) of CIR (O2's version of Ounce's Common Intermediate Representation). By exposing the CIR object model in a powerful GUI (and programmatically object model), this module allows O2 users to gain a much wider understanding of the application under analysis. It is also possible to create O2 Findings from CIR data.
	KEY / UNIQUE FEATURES	<ul style="list-style-type: none"> <li>Ability to consume CIR created from all languages supported by the Ounce 6.x engine</li> <li>Ability to create CIR from .NET (and very soon) Java class files</li> <li>Recursive mapping of function callers, Function Callers and SuperClasses/Interfaces</li> </ul>
	USE CASES	<ul style="list-style-type: none"> <li>Visualize an application object model</li> <li>Create call-flow traces (i.e. findings) from CIR</li> </ul>
	GEEK-O-METER	
	PRODUCTIZATION READINESS	
	CAN OSA DO THIS?	
	COMMERCIAL SOFTWARE DEPENDENCIES:	Uses Ounce's created CIR.
	ROADMAP: NEXT DEVELOPMENT	<p>IRK / COMMERCIAL TOOLS (\$\$)</p> <ul style="list-style-type: none"> <li>Convert O2 CirData representation into the (under development) OIR (Open Intermediate Representation) Schema</li> <li>Add support for CirData creation for java class files (functionality already available in the O2 Spring MVC module)</li> </ul> <p>OPEN SOURCE (FREE)</p>

see presentation

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## ACTIVE O2 MODULES (6X)

<b>ACTIVE</b> MAIN GUI 	<b>MODULE:</b> <b>O2 Cmd - Findings Filter</b> <b>DESCRIPTION</b> This O2 module allows basic command line tools can be easily created to handle			
<b>ACTIVE</b> MAIN GUI 	<b>MODULE:</b> <b>O2 Cmd - Spring MVC</b> <b>DESCRIPTION</b> Specifically targeted at the Java Spring MVC framework, this module is able to ...			
<b>ACTIVE</b> MAIN GUI 	<b>MODULE:</b> <b>O2 Debugger Mdbg</b> <b>DESCRIPTION</b> Managed wrapper on top of Microsoft's managed debugger.			
<b>ACTIVE</b> MAIN GUI 	<b>MODULE:</b> <b>O2 Scanner - MsCatNet</b> <b>DESCRIPTION</b> Module that allows the scanning of .NET applications using the freely available			
<b>ACTIVE</b> MAIN GUI 	<b>MODULE:</b> <b>O2 Tool - Cir Viewer</b> <b>DESCRIPTION</b> This module allows the creation (.NET) and visualization (all Ounce supported)			
<b>ACTIVE</b> MAIN GUI 	<b>MODULE:</b> <b>O2 Tool - C-Sharp Scripts</b> <b>DESCRIPTION</b> This module is designed to help writing O2 modules in O2. It provides a full compilation and debugging environment (using the same modules as the O2 Debugger (Mdbg module)) and allows advanced users to write powerful scripts on top of the O2 Object model			
	<b>KEY / UNIQUE FEATURES</b> <ul style="list-style-type: none"> <li>Write analysis scripts (i.e. custom modules) on a managed language (C#)</li> <li>Ability to hook and control the debugging engine (which is how the O2 virtual patching occurs)</li> </ul> <b>USE CASES</b> <ul style="list-style-type: none"> <li>Advanced debugging of .NET &amp; ASP.NET applications</li> <li>Exploit development and Virtual patching</li> </ul> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <b>PRODUCTIZATION READINESS</b> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="background-color: #2e8b57; color: white; padding: 2px;">UNRESOLVED PROBLEMS</td> <td style="background-color: #008000; color: white; padding: 2px;">SOLVED</td> <td style="background-color: #008000; color: white; padding: 2px;">PROTOTYPE</td> </tr> </table> </div> <div style="width: 45%;"> <b>CAN OSA DO THIS?</b> <p>with sweat and blood</p>  </div> </div> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <span>FREE Microsoft Managed Debugger demo application</span> <span>IBM / COMMERCIAL TOOL (IVE)</span> <span>OPEN SOURCE (FREE)</span> </div> <div style="margin-top: 10px;"> <b>ROADMAP: NEXT DEVELOPMENT</b> <ul style="list-style-type: none"> <li>Integrate with the O2 Scripts module in order to create a single scripting environment for O2</li> <li>Lazy load required scripting and debugging engines</li> </ul> </div>	UNRESOLVED PROBLEMS	SOLVED	PROTOTYPE
UNRESOLVED PROBLEMS	SOLVED	PROTOTYPE		

see presentation

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 for individual slides with O2 Modules details





## ACTIVE O2 MODULES (6X)

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see presentation

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for individual slides with O2 Modules details

## ACTIVE O2 MODULES (6X)

**ACTIVE MODULE:**

**O2 Tool - Java Execution**

**DESCRIPTION**  
 Module that allows users to access the rich O2 object model from Java. Although the code written in Java will seem to have FULL access to the O2 Object model, under the hood Java bytecode will be converted (using IKVM) into .NET byte code, who is then able to access and consume directly the O2 modules used (IKVM has a built in tool that creates jar stubs from .NET assemblies).

**KEY / UNIQUE FEATURES**

- Wraps IKVM and allows the easy creation of the dependencies required to write O2 Modules in Java (making it easy to script O2 from Eclipse)
- Adds to O2 Scripting module the ability to write and execute Java code

**USE CASES**

- Write custom scripts in Java that access or manipulate data stored in O2 Objects

**PRODUCTIZATION READINESS**

UNRESOLVED PROBLEM	SOLVED	PROTOTYPE
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**CAN OSA DO THIS?**

**COMMERCIAL SOFTWARE DEPENDENCIES:**

IBM / COMMERCIAL TOOL (SSE)	OPEN SOURCE (FREE)
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**ROADMAP: NEXT DEVELOPMENT**

- further automate the process of using IKVM in O2
- Auto configure Eclipse so that developers can use it (Eclipse) to write and execute their [written] Java code



see presentation

<http://www.o2-ounceopen.com/files-binaries-source-and-demo/old-documents-and-presentations/O2%20Modules%20Presentation%20V1.0.pdf>  
 for individual slides with O2 Modules details

## ACTIVE O2 MODULES (6X)

**ACTIVE**

MAIN GUI



**MODULE:** **O2 Tool - Java Execution**

**DESCRIPTION**  
Module that allows users to access the rich O2 object model from Java. Although

**ACTIVE & LEGACY**

MAIN GUI



**MODULE:** **O2 Tool - Join Traces**

**DESCRIPTION**  
This module provides a PoC (Proof of Concept) for how traces can be joined together based on simple string mappings ("join traces when the Sink on trace A matches the Source on trace B") or web services mappings ("join traces when the sink from trace from the web layer scan matches the source of the web services layer")

**KEY / UNIQUE FEATURES**

- Join separate traces based on a simple string criteria
- Automatically handle the joining of .NET web services

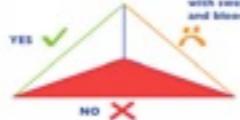
**USE CASES**

- Create traces that cross multiple logical or physical boundaries and create highly-actionable findings

**PRODUCTIZATION READINESS**

UNRESOLVED PROBLEMS	SOLVED	PROTOTYPE
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**CAN OSA DO THIS?**



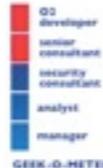
**COMMERCIAL SOFTWARE DEPENDENCIES:**  
Joins traces created by Ounce and others

IBM / COMMERCIAL TOOL (EXP)

OPEN SOURCE (FREE)

**ROADMAP: NEXT DEVELOPMENT**

- Convert join algorithm in new O2 Findings Format
- Add support for more automatic Traces Joins (getters & setters, SetAttribute, HashMaps, etc.)





see presentation

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## ACTIVE O2 MODULES (6X)

**ACTIVE**

**MODULE:** **O2 Tool - Java Execution**

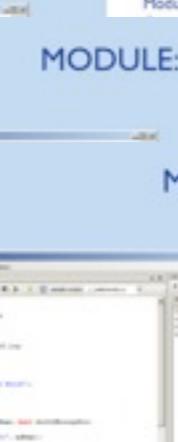
**DESCRIPTION**  
Module that allows users to access the rich O2 object model from Java. Although



**ACTIVE & LEGACY**

**MODULE:** **O2 Tool - Join Traces**

**DESCRIPTION**  
This module provides a PoC (Proof of Concept) for how traces can be joined.



**ACTIVE**

**MODULE:** **O2 Tool - O2 Scripts**

**DESCRIPTION**  
Lightweight O2 scripting environment that supports scripting in .NET, Java, Python and Iron Python

**KEY / UNIQUE FEATURES**

- Supports multiple engines
- Exposes O2 Object model

**USE CASES**

- Quickly write Python scripts that consume the O2 engines and access Java Jars or .NET assemblies

█ **O2 developer**  
█ **senior consultant**  
█ **security consultant**  
█ **analyst**  
█ **manager**

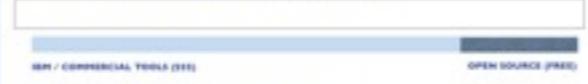
**PRODUCTIZATION READINESS**

UNRESOLVED PROBLEMS	SOLVED	PROTOTYPE
---------------------	--------	-----------

**CAN OSA DO THIS?**



**COMMERCIAL SOFTWARE DEPENDENCIES:**



**ROADMAP: NEXT DEVELOPMENT**

- Add Intellisense to C# editing environment
- Add support for unit test creation and execution



see presentation

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## ACTIVE O2 MODULES (6X)

**ACTIVE**

**MODULE:** **O2 Tool - Java Execution**

**DESCRIPTION**  
Module that allows users to access the rich O2 object model from Java. Although

**ACTIVE & LEGACY**

**MODULE:** **O2 Tool - Join Traces**

**DESCRIPTION**  
This module provides a PoC (Proof of Concept) for how traces can be joined.

**ACTIVE**

**MODULE:** **O2 Tool - O2 Scripts**

**DESCRIPTION**  
Lightweight O2 scripting environment that supports scripting in .NET,Java,Python

**ACTIVE**

**MODULE:** **O2 Tool - Python**

**DESCRIPTION**  
O2 module that allows the quick creation and execution of Python scripts in [Python](#) (Java), [IronPython](#) (.NET) or [CPython](#) (C). An interactive Shell is also provided for IronPython and Python

**KEY / UNIQUE FEATURES**

- GUI based interactive shell for IronPython and Python
- Opens external shells and supports dynamic scripting and execution for IronPython, Python and CPython

**USE CASES**

- Quickly write scripts that consume the O2 engines in Python

**PRODUCTIZATION READINESS**

UNRESOLVED PROBLEMS	SOLVED	PROTOTYPE
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**CAN OSA DO THIS?**

**COMMERCIAL SOFTWARE DEPENDENCIES:**

IBM / COMMERCIAL TOOLS (RHS)      OPEN SOURCE (FREE)

**ROADMAP: NEXT DEVELOPMENT**

- Integrate with a better [Python](#) editor
- Add Python debugging

②

see presentation

<http://www.o2-ounceopen.com/files-binaries-source-and-demo/old-documents-and-presentations/O2%20Modules%20Presentation%20V1.0.pdf>  
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## ACTIVE O2 MODULES (6X)

ACTIVE	MODULE:	O2 Tool - Java Execution			
MAIN GUI	DESCRIPTION	Module that allows users to access the rich O2 object model from Java. Although			
ACTIVE & LEGACY	MODULE:	O2 Tool - Join Traces			
MAIN GUI	DESCRIPTION	This module provides a PoC (Proof of Concept) for how traces can be joined.			
ACTIVE	MODULE:	O2 Tool - O2 Scripts			
MAIN GUI	DESCRIPTION	Lightweight O2 scripting environment that supports scripting in .NET,Java,Python			
ACTIVE	MODULE:	O2 Tool - Python			
MAIN GUI	DESCRIPTION	O2 module that allows the quick creation and execution of Python scripts in			
ACTIVE	MODULE:	O2 Tool - Rules Manager			
MAIN GUI	DESCRIPTION	Very powerful O2 Module that allows the quick visualization, creation and editing of Ounce rules. The module supports the O2 Rule Pack format which can be used to import or export rules between different O2 or Ounce computers. This module supports the following common work flow: Scan application, create CIR, create rules from CIR, rescan application, create rules from scan findings.			
	KEY / UNIQUE FEATURES	<ul style="list-style-type: none"> <li>Import rules from Ounce's MySql database; powerful filtering</li> <li>Create or modify rules; compare changed rules to MySql database, map CirData and Findings to existing rules;</li> <li>Automatically create rules from CirData. Apply rules to findings without requiring rescan</li> </ul>			
	USE CASES	<ul style="list-style-type: none"> <li>Advanced use of the Ounce Engine</li> <li>Use of O2's mini Call-flow Analysis Engine</li> </ul>			
	KEY / UNIQUE FEATURES	<p>GEEK-O-METER</p> <ul style="list-style-type: none"> <li>0: developer</li> <li>25: senior consultant</li> <li>50: security consultant</li> <li>75: analyst</li> <li>100: manager</li> </ul>			
	PRODUCTIZATION READINESS	<table border="1"> <tr> <td>UNRESOLVED PROBLEM</td> <td>SOLVED</td> <td>PROTOTYPE</td> </tr> </table>	UNRESOLVED PROBLEM	SOLVED	PROTOTYPE
UNRESOLVED PROBLEM	SOLVED	PROTOTYPE			
	CAN OSA DO THIS?				
	COMMERCIAL SOFTWARE DEPENDENCIES:	Ounce MySql rules database and Ounce Scanner			
	ROADMAP: NEXT DEVELOPMENT	<ul style="list-style-type: none"> <li>Add support for rules diff (between O2 RulePacks or Ounce live databases)</li> <li>Simplify mature workflows by creating new simple GUIs with only 1 or 2 moving parts</li> <li>Move rules format into the (under development) ORDF (Open Rules Definition Language) Schema</li> <li>Add Oracle support (Ounce)</li> </ul>			

see presentation

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for individual slides with O2 Modules details

# ACTIVE O2 MODULES (6X)

ACTIVE	MODULE:	O2 Tool - Java Execution
MAIN GUI	DESCRIPTION	Module that allows users to access the rich O2 object model from Java. Although
ACTIVE & LEGACY	MODULE:	O2 Tool - Join Traces
MAIN GUI	DESCRIPTION	This module provides a PoC (Proof of Concept) for how traces can be joined
ACTIVE	MODULE:	O2 Tool - O2 Scripts
MAIN GUI	DESCRIPTION	Lightweight O2 scripting environment that supports scripting in .NET,Java,Python
ACTIVE	MODULE:	O2 Tool - Python
MAIN GUI	DESCRIPTION	O2 module that allows the quick creation and execution of Python scripts in
ACTIVE	MODULE:	O2 Tool - Rules Manager
MAIN GUI	DESCRIPTION	Very powerful O2 Module that allows the quick visualization, creation and editing
ACTIVE	MODULE:	O2 Tool - Search Engine
MAIN GUI	DESCRIPTION	Simple tool to allow the quick <u>RegEx</u> search of source files (source code, xml config files, etc...) During a normal engagement, this tool tends to be used very regularly (from helping to quickly find a particular text string to validating a source code finding)
KEY / UNIQUE FEATURES		<ul style="list-style-type: none"> <li>Ability to recursively import files from a drag and dropped directly (with quick filtering on file type and display of files size)</li> <li>Ability to run multiple searches and to quickly see its source code reference</li> </ul>
USE CASES		<ul style="list-style-type: none"> <li>Text search of provided source code artifacts during security engagement.</li> </ul>
PRODUCTIZATION READINESS		
CAN OSA DO THIS?		
COMMERCIAL SOFTWARE DEPENDENCIES:		
 <small>IBM / COMMERCIAL TOOLS (9%) OPEN SOURCE (FREE)</small>		
ROADMAP: NEXT DEVELOPMENT		
<ul style="list-style-type: none"> <li>Create findings from Search results</li> <li>Save Search Criteria <u>RegEx</u> as a Rule (create rule save format first)</li> <li>Allow boolean logic on</li> <li>Add 'Search by Proximity' feature</li> </ul>		

see presentation

<http://www.o2-ounceopen.com/files-binaries-source-and-demo/old-documents-and-presentations/O2%20Modules%20Presentation%20V1.0.pdf>  
for individual slides with O2 Modules details



## LEGACY O2 MODULES (6X)

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see presentation

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for individual slides with O2 Modules details

## LEGACY O2 MODULES (6X)

**LEGACY**

**MODULE:** **O2 Scanners**

**DESCRIPTION**  
 O2 module that allows the easy triggering of scans using the Ounce CLI (Command Line Interface) or the Microsoft's CAT.NET Scanner. This module also contains an earlier version of the O2's CIR creation process and a special scanning mode (now discontinued) that aimed at generating ALL possible traces.

**KEY / UNIQUE FEATURES**

- Standard interface to trigger scans
- Drag & Drop scanning environment
- Ability to run a multi-pass scan (on the Ounce 6.x) engine that generates ALL possible traces
- Ability to manually control the CIR creation process

**USE CASES**

- Advanced O2 users that want to generate all traces or control the CIR creation process

**PRODUCTIZATION READINESS**

UNRESOLVED PROBLEMS	SOLVED	PROTOTYPE
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**CAN OSA DO THIS?**

**COMMERCIAL SOFTWARE DEPENDENCIES:**  
 Uses Ounce's and Microsoft's CAT.NET scanning engine

**ROADMAP: NEXT DEVELOPMENT**

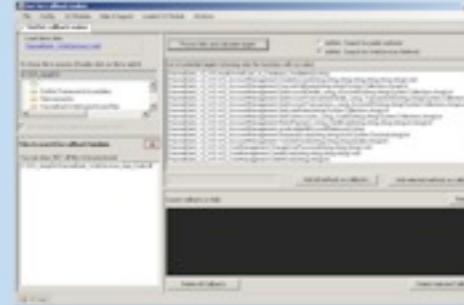
- This module has been made redundant by the new version of Rules Manager and standalone CAT.NET scanning module

②

see presentation

<http://www.o2-ounceopen.com/files-binaries-source-and-demo/old-documents-and-presentations/O2%20Modules%20Presentation%20V1.0.pdf>  
 for individual slides with O2 Modules details

# LEGACY O2 MODULES (6X)

LEGACY	MODULE:	DESCRIPTION
<b>MAIN GUI</b>	<b>O2 Scanners</b>	O2 module that allows the easy triggering of scans using the Ounce CLI
	<b>MODULE:</b>	<b>O2 Tool - DotNet Callbacks Maker</b>
	<b>DESCRIPTION</b>	Allow the automatic generation of Ounce 6.x rules (of type 'callback') for web services and public methods This module parses the provided .NET dls (directly or by recursively searching a directory) and uses .NET reflection to identify public methods or methods marked with the [WebMethod] attribute (i.e. Web Services methods)
	<b>KEY / UNIQUE FEATURES</b>	<ul style="list-style-type: none"> <li>Quickly identify public or web services methods</li> <li>Quickly create Ounce 6.0 rules for the identified methods</li> </ul>
	<b>USE CASES</b>	<ul style="list-style-type: none"> <li>Scanning .NET applications with .NET Web Services</li> </ul>
	<b>PRODUCTIZATION READINESS</b>	<b>CAN OSA DO THIS!</b>
<span style="background-color: green; color: white; padding: 2px 5px;">UNSOLVED PROBLEM</span> <span style="background-color: lightblue; color: black; padding: 2px 5px;">SOLVED</span> <span style="background-color: lightgreen; color: black; padding: 2px 5px;">PROTOTYPE</span>		
	<b>COMMERCIAL SOFTWARE DEPENDENCIES:</b>	Connects to Ounce Rules Database
		<span style="background-color: black; color: white; padding: 2px 5px;">IBM / COMMERCIAL TOOL (FREE)</span> <span style="background-color: lightblue; color: black; padding: 2px 5px;">OPEN SOURCE (FREE)</span>
	<b>ROADMAP: NEXT DEVELOPMENT</b>	<ul style="list-style-type: none"> <li>This module has been made redundant by the new version of Rules Manager and standalone <a href="#">CAT.NET</a> scanning module</li> </ul>

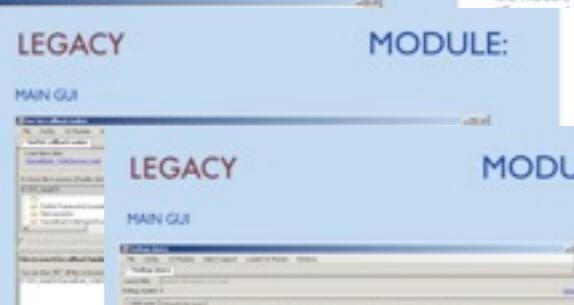
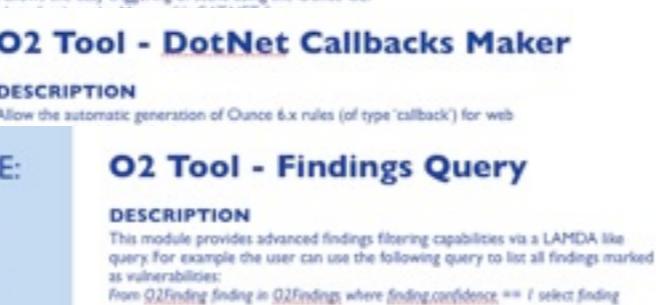


see presentation

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## LEGACY O2 MODULES (6X)

LEGACY	MODULE:	O2 Scanners			
MAIN GUI	DESCRIPTION	O2 module that allows the easy triggering of scans using the Ounce CLI			
	MODULE:	<b>O2 Tool - DotNet Callbacks Maker</b>			
LEGACY	DESCRIPTION	Allow the automatic generation of Ounce 6.x rules (of type 'callback') for web			
	MODULE:	<b>O2 Tool - Findings Query</b>			
MAIN GUI	DESCRIPTION	This module provides advanced findings filtering capabilities via a LAMDA like query for example the user can use the following query to list all findings marked as vulnerabilities: From O2Finding finding in O2Findings where finding.confidence == 1 select finding			
	KEY / UNIQUE FEATURES	<ul style="list-style-type: none"><li>Ability to write filters in a dynamically constructed LAMDA query</li><li>High performance filtering engine allows quick analysis and (saving) of 100Mb+ assessment files</li></ul>			
	USE CASES	<ul style="list-style-type: none"><li>Filtering large *.osamnt files</li><li>Creating smaller osamnt files based on LAMDA query results</li></ul>			
	PRODUCTIZATION READINESS	<table border="1"><tr><td>UNRESOLVED PROBLEM</td><td>SOLVED</td><td>PROTOTYPE</td></tr></table>	UNRESOLVED PROBLEM	SOLVED	PROTOTYPE
UNRESOLVED PROBLEM	SOLVED	PROTOTYPE			
	CAN OSA DO THIS?				
	COMMERCIAL SOFTWARE DEPENDENCIES:	Consumes osamnt files created by Ounce (& others)			
	ROADMAP: NEXT DEVELOPMENT	<table border="1"><tr><td>ISN / COMMERCIAL TOOLS (ISI)</td><td>OPEN SOURCE (FREE)</td></tr></table>	ISN / COMMERCIAL TOOLS (ISI)	OPEN SOURCE (FREE)	
ISN / COMMERCIAL TOOLS (ISI)	OPEN SOURCE (FREE)				
		<ul style="list-style-type: none"><li>This module was made redundant by the O2 Findings Viewer Module</li></ul>			

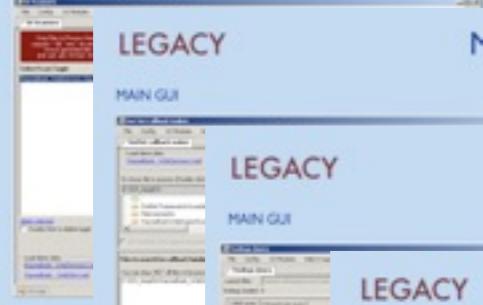
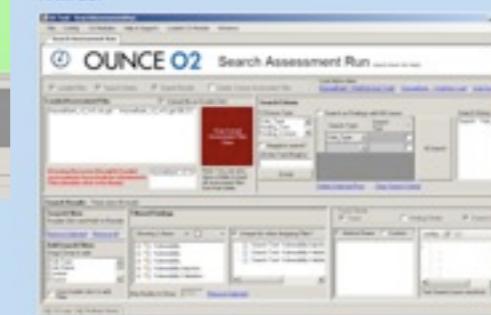


see presentation

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## LEGACY O2 MODULES (6X)

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MAIN GUI	DESCRIPTION	Allow the automatic generation of Ounce 6.x rules (of type 'callback') for web			
					
LEGACY	MODULE:	O2 Tool - Findings Query			
MAIN GUI	DESCRIPTION	This module provides advanced findings filtering capabilities via a LAMDA like			
					
LEGACY	MODULE:	O2 Tool - Search Assessment Run			
MAIN GUI	DESCRIPTION	This was the first O2 module that fully supported the loading of multiple assessment files with powerful filtering capabilities (with support to save the filter results). This module (using the same engine as the O2 Tool - View Assessment Run) also provides a very powerful visualization tool which is able to visualize multiple traces at the same time (and visually identify common vulnerable code patterns)			
	KEY / UNIQUE FEATURES	<ul style="list-style-type: none"><li>Load multiple assessment files</li><li>Run multiple filter criteria and save the results in separate files</li><li>Visualize multiple traces</li></ul>			
	USE CASES	<ul style="list-style-type: none"><li>Analysis of Ounce files</li></ul>			
	PRODUCTIZATION READINESS	<table border="1"><tr><td>UNRESOLVED PROBLEM</td><td>SOLVED</td><td>PARTIALLY</td></tr></table>	UNRESOLVED PROBLEM	SOLVED	PARTIALLY
UNRESOLVED PROBLEM	SOLVED	PARTIALLY			
	CAN OSA DO THIS?				
	COMMERCIAL SOFTWARE DEPENDENCIES:	Consumes <a href="#">osamit</a> files created by Ounce (& others)			
	ROADMAP: NEXT DEVELOPMENT	<p>IBM / COMMERCIAL TOOLS (30%)</p> <p>OPEN SOURCE (60%)</p> <ul style="list-style-type: none"><li>This module was made redundant by the O2 Findings Viewer Module</li></ul>			



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## LEGACY O2 MODULES (6X)

LEGACY	MODULE:	O2 Scanners
MAIN GUI	DESCRIPTION	O2 module that allows the easy triggering of scans using the Ounce CLI
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MAIN GUI	DESCRIPTION	Allow the automatic generation of Ounce 6.x rules (of type 'callback') for web
LEGACY	MODULE:	O2 Tool - Findings Query
MAIN GUI	DESCRIPTION	This module provides advanced findings filtering capabilities via a LAMDA like
LEGACY	MODULE:	O2 Tool - Search Assessment Run
MAIN GUI	DESCRIPTION	This was the first O2 module that fully supported the loading of multiple assessment
LEGACY	MODULE:	O2 Tool - View Assessment Run
MAIN GUI	DESCRIPTION	This was the first module to provide a simple view into the unique lists of Sources, Sinks and Lost sinks of <code>osam</code> files This module is a simpler version of the O2 Tool - Search Assessment Run and its main use today is to provide an easier interface into the trace visualization of multiple traces
	KEY / UNIQUE FEATURES	<ul style="list-style-type: none"><li>• Visualization of O2 Traces</li><li>• View Finding and Trace information</li><li>• Unique set of filters for <code>osam</code> files</li></ul>
	USE CASES	<ul style="list-style-type: none"><li>• Analysis of <code>osam</code> files</li></ul>
	GEEK-O-METER	
	PRODUCTIZATION READINESS	
	CAN OSA DO THIS?	
	COMMERCIAL SOFTWARE DEPENDENCIES:	Consumes <code>osam</code> files created by Ounce (& others)
	ROADMAP: NEXT DEVELOPMENT	<ul style="list-style-type: none"><li>• This module was made redundant by the O2 Findings Viewer Module</li></ul>



see presentation

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MAIN GUI	DESCRIPTION	This was the first O2 module that fully supported the loading of multiple assessment
LEGACY	MODULE:	<b>O2 Tool - View Assessment Run</b>
MAIN GUI	DESCRIPTION	This was the first module to provide a simple view into the unique lists of
LEGACY	MODULE:	<b>O2 Tool - WebInspect Converter</b>
MAIN GUI	DESCRIPTION	PoC of the integration of an Black Box scanning engine (HP's Web Inspect) with a White Box scanning engine (Ounce Labs 6.0)
KEY / UNIQUE FEATURES		
<ul style="list-style-type: none"> <li>Show how the integration between White Box and Black Box can be implemented</li> </ul>		
USE CASES		
<ul style="list-style-type: none"> <li>Create consolidated findings between multiple scan engines</li> </ul>		
PRODUCTIZATION READINESS		
UNRESOLVED PROBLEMS	SOLVED	PROTOTYPE
COMMERCIAL SOFTWARE DEPENDENCIES:		
Matches Ounce's with WebInspect's results		
ROADMAP: NEXT DEVELOPMENT		
<ul style="list-style-type: none"> <li>Add support for other Black Box scanners</li> <li>Improve the GUI to allow the visual mapping of both set of results</li> <li>Create command line version so that this process can be automated into a build process</li> </ul>		

see presentation

<http://www.o2-ounceopen.com/files-binaries-source-and-demo/old-documents-and-presentations/O2%20Modules%20Presentation%20V1.0.pdf>  
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# STABLE O2 MODULES (IX)

**STABLE**

**MODULE:**

**MAIN GUI**

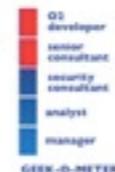
## O2 Tool - Host Local Website

### DESCRIPTION

Allows the drag and drop of a local folder which will become exposed a locally executed web server.  
This module is usually used in conjunction with the O2 Debugger Mdbg since once the web server has started it can be remotely hooked and instrumented.

### KEY / UNIQUE FEATURES

- Easy creation of locally running web servers on arbitrary folders



### USE CASES

- Debug .NET applications
- Write exploits for .NET application

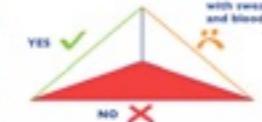
### PRODUCTIZATION READINESS

UNRESOLVED PROBLEMS

SOLVED

PROTOTYPE

### CAN OSA DO THIS?



### COMMERCIAL SOFTWARE DEPENDENCIES:

Uses Microsoft's test [webservice](#) included with Visual Studio

ISH / COMMERCIAL TOOLS (EEI)

OPEN SOURCE (FREE)

### ROADMAP: NEXT DEVELOPMENT

- Add creation of 'slices of websites' based on dynamic creation of unit tests



see presentation

<http://www.o2-ounceopen.com/files-binaries-source-and-demo/old-documents-and-presentations/O2%20Modules%20Presentation%20V1.0.pdf>  
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## VAPORWARE O2 MODULES (2X)

see presentation

<http://www.o2-ounceopen.com/files-binaries-source-and-demo/old-documents-and-presentations/O2%20Modules%20Presentation%20V1.0.pdf>

for individual slides with O2 Modules details

## VAPORWARE O2 MODULES (2X)

**Vaporware**

MODULE:

MAIN GUI

The screenshot shows a software interface titled "Vaporware". On the left, there's a sidebar with buttons for "Import Filter", "Choose Filters", "Apply Filters", and "Export Filter". The main area displays a list of files with columns for "File Name", "Type", "Confidence", and "Severity". A toolbar at the bottom includes "New", "Open", "Save", "Print", and "Exit".

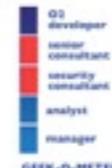
### O2 Tool - Filter Assessment Files

#### DESCRIPTION

This module was originally written as a PoC (Proof of Concept) to deal with a number of commonly asked feature requests by Ounce users.. The objective was to create a GUI that allowed the easy processing and filtering of large assessment files (for example by extracting only the findings marked with a confidence = Vulnerability and a severity = High).The technology required is already in O2.

#### KEY / UNIQUE FEATURES

- (if implemented) Provides easy GUI-Driven filtering of *O2audit* files



#### USE CASES

- Filtering large *O2audit* findings files

#### PRODUCTIZATION READINESS

UNSOLOVED PROBLEM

SOLVED

PROTOTYPE

#### CAN OSA DO THIS?



#### COMMERCIAL SOFTWARE DEPENDENCIES:

Consumes *o2audit* files created by Ounce (& others)



#### ROADMAP: NEXT DEVELOPMENT

- This module was made redundant by the O2 Findings Viewer Module
- This module is currently not complete, and unless there are further requests there are no extra development planned.



see presentation

<http://www.o2-ounceopen.com/files-binaries-source-and-demo/old-documents-and-presentations/O2%20Modules%20Presentation%20V1.0.pdf>  
for individual slides with O2 Modules details

# VAPORWARE O2 MODULES (2X)

**Vaporware** MODULE:

MAIN GUI

DESCRIPTION

This module was originally written as a PoC (Proof of Concept) to deal with a number of commonly asked feature requests by Ounce users.. The objective was to create a GUI that allowed the easy processing and filtering of large assessment files (for example by extracting only the findings marked with a confidence = Vulnerability and a severity = High).The technology required is already in O2.

KEY / UNIQUE FEATURES

- (if implemented) Provides easy GUI-Driven filtering of [O2Assmt](#) files

USE CASES

- Filtering large [O2Assmt](#) findings files

PRODUCTIZATION READINESS

UNRESOLVED PROBLEMS	SOLVED	PROTOTYPE
---------------------	--------	-----------

CAN OSA DO THIS?

## O2 Tool - Filter Assessment Files

**Vaporware** MODULE:

MAIN GUI

COMMERCIAL SOFTWARE

Consumes [O2Assmt](#) files created by Ounce

IBM / COMMERCIAL TOOLS (FREE)

ROADMAP: NEXT DEVELOPMENT

- This module was made redundant
- This module is currently not considered for further development as there are no extra development resources available

## O2 Tool - O2 Reflector

DESCRIPTION

This module aims to create a single point of decompilation/creation and visualization of .NET assemblies and Java class files. The objective is to support the multiple Byte Code analysis engines and provide a single environment to quickly manually analyze compiled .NET, Java or [CirData](#) files.

KEY / UNIQUE FEATURES

- Supports visualization of classes and methods for .NET assemblies (using .NET Reflection and Mono Cecil) and for [CirData](#) files
- Uses MonoCecil Decomplier to convert .NET ByteCode to C#

USE CASES

- Visualize .NET assemblies, Java classes or [CirData](#) files

PRODUCTIZATION READINESS

UNRESOLVED PROBLEMS	SOLVED	PROTOTYPE
---------------------	--------	-----------

CAN OSA DO THIS?

COMMERCIAL SOFTWARE DEPENDENCIES:

Consumes [CirData](#) files created by Ounce

IBM / COMMERCIAL TOOLS (FREE)

OPEN SOURCE (FREE)

ROADMAP: NEXT DEVELOPMENT

- Add support for the latest O2 Cir data creation and visualization capabilities
- Add support for .NET code decompilation (using [Mono.Cecil](#) decompiler or Reflector) and Java (using JAD)



see presentation

<http://www.o2-ounceopen.com/files-binaries-source-and-demo/old-documents-and-presentations/O2%20Modules%20Presentation%20V1.0.pdf>  
for individual slides with O2 Modules details



@





# O2 is now an OWASP Project “OWASP O2 PLATFORM”

This is the future home of O2 (Dunce Open) which is currently hosted at <http://www.o2-ounceopen.com/>

## OWASP Projects that O2 will immediately start to integrate with and add value:

**Category:OWASP Orizon Project**

The quest for secure code is what all developers want to achieve (at least we hope so). Software must be reliable. Software must be strong. Software must be secure. How secure does my software have to be? The correct answer is hard to find. But security is a problem that even a development team must consider. Should skilled developers also be security gurus? Not necessarily, but it is important to provide security tools that will augment their development skills. And so our quest for secure code begins...

The OWASP Orizon project was created with the aim of providing a common ground for safe coding and code review methodologies to be applied to software. The project is approaching its first major release and will be able to be used in a production environment in the near future.

Orizon must give thanks to Findbugs, the OWASP LAPISE Project, RATIS, and Flawfinder for ideas and inspiration.

**Category:OWASP Code Review Project**

This project has produced a book that can be downloaded or purchased. Feel free to browse the full catalog of available OWASP books.

**PROJECT IDENTIFICATION**

**Project Name:** OWASP Code Review Guide V1.1

The code review guide is currently at release version 1.1 and the second best selling OWASP book in 2006. Many positive comments have been feedback regarding this initial version and believe it's a key enabler for the OWASP fight against software insecurity. It has even inspired individuals to build tools based on its information. The combination of a book on secure code review and tools to support such an activity is very powerful as it gives the developer community a place to start regarding secure application development.

Going forward I hope to further integrate with the A2Zs and other guides such as the testing and ASOR guides shall be performed for version 2.0.

Project Key Information	Project Leader	Project Contributors	Mailing List	Creative Commons Attribution	Project Type	Sponsor
E-mail	E-mail	E-mail	E-mail	E-mail	Documentation	OWASP Foundation

**Category:OWASP .NET Project**

**Purpose**

The purpose of the OWASP .NET Project is to provide a central repository of information and tools for software professionals that use the Microsoft .NET Framework for web applications and services. The project will try to include resources from Microsoft and from the Open Source community, the Alt.NET community and other related security resources.

Please review the [vulnerabilities](#) section at OWASP for the grand list of web vulnerabilities, many apply to .NET software. This section has a Quick Reference table for OWASP projects that you can use for your security projects now. For .NET related content throughout the site, look for the [.NET category](#). There is plenty of work to be done, so feel free to join the OWASP .NET Project (See Joining the project below). Contribute work or join our mailing list, many voices are better than one, so join today!

**Category:OWASP Java Project**

**About**

The OWASP Java Project's goal is to enable Java and J2EE developers to build secure applications efficiently. See the [OWASP Java Project Roadmap](#) for more information on our plans.

**Joining the Project**

Rohit Belani is the project lead. The project's high level roadmap can be found at the [OWASP Java Project Roadmap](#).

- Please submit your ideas for individual articles to the [Java Project Article Wishlist](#).
- If you'd like to contribute:
  - visit the [Tutorial](#),
  - join the [mailing list](#),
  - pick a topic from the [OWASP Java Table of Contents](#), or suggest a new topic.

Remember to add the tag: [[Category:OWASP Java Project]] to the end of new articles so that they're properly categorised.

**Category:OWASP Testing Project**

**Project Name:** OWASP Testing Guide V3.0 Project

The OWASP Testing Guide includes a "best practice" penetration testing framework which users can implement in their own organizations and a "low level" penetration testing guide that describes techniques for testing most common web application and web service security issues.

OWASP Testing Guide v3 is a 340 page book, we have split the set of active tests in 9 sub-categories for a total of 96 controls to test during the Risk Application Testing activity.

Key Project Information	Project Leader	Project Contributors	Mailing List	Creative Commons Attribution	Project Type	Sponsor
E-mail	E-mail	E-mail	E-mail	E-mail	Documentation	OWASP Foundation

**Category:OWASP Source Code Review OWASP Projects Project**

**PROJECT IDENTIFICATION**

**Project Name:** OWASP Source Code Review OWASP-Projects Project

The objectives of this project are: 1. Develop and document a workflow for FLOSS projects to incorporate static analysis into the Software Development Life Cycle (SDLC); 2. Apply the above workflow as a required step for OWASP projects; 3. Aid in auditing select FLOSS projects to create a baseline for comparing security amongst FLOSS projects.

Project key Information	Project Leader	Project Contributors	Mailing list	Creative Commons Attribution	Project Type	Sponsor
E-mail	Dan Cornell	Derry Maursen	E-mail	E-mail	Documentation	OWASP Foundation



## (EXAMPLE OF THE MANY) O2 CONTRIBUTIONS TO Open Standards: ICirData, ICirClass, ICirFunction, ICir\*

```
public interface ICirData
{
    Dictionary<string, ICirClass> dClasses_bySignature ( get; set; )
    Dictionary<string, ICirFunction> dFunctions_bySignature ( get; set; )

public interface ICirClass
{
    Dictionary<string, ICirFunction> dFunctions { get; set; }
    Dictionary<string, ICirClass> dIsSuperClassedBy { get; set; }
    Dictionary<string, ICirClass> dSuperClasses { get; set; }

    string Signature { get; set; }
    string Module { get; set; }
    string Name { get; set; }
    string FullName { get; set; }
    string Namespace { get; set; }

    // Reference to file location (or the source code in most case
    string File { get; set; }
    string FileLine { get; set; }
}

public interface ICirFunction
{
    List<ICirFunction> FunctionsCalledUniqueList { get; set; }
    List<ICirFunctionCall> FunctionsCalled { get; set; }

    List<ICirFunctionCall> FunctionIsCalledBy { get; set; }
    List<ICirFunctionParameter> FunctionParameters { get; set; }

    ICirClass ParentClass { get; set; }

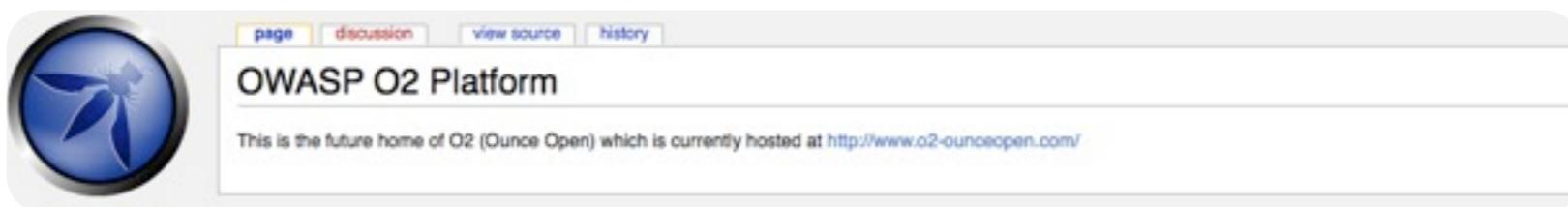
    string FunctionSignature { get; set; }
    string ReturnType { get; set; }
    string FunctionNameAndParameters { get; set; }
    string ClassNameFunctionNameAndParameters { get; set; }
    string FunctionName { get; set; }
    string ParentClassNameFullName { get; set; }
    string ParentClassName { get; set; }
    string Module { get; set; }

public interface ICirFunctionCall
{
    ICirFunction cirFunction { get; set; }
    int lineNumber { get; set; }
    string fileName { get; set; }
    int sequenceNumber { get; set; }
    String sourceCodeText { get; set; }
}

public interface ICirFunctionParameter
{
    string ParameterName { get; set; }
    string ParameterType { get; set; }
    string Constant { get; set; }
    bool HasConstant { get; set; }
    bool HasDefault { get; set; }
    string Method { get; set; }
    bool IsTainted { get; set; }
}
```

## TWO O2 WEBSITES

- Like OWASP's SAMM (& others), in the short term, O2 will be hosted in two separate websites:
  - **Official** 'stable' versions will be hosted using OWASP's WIKI engine at:  
[\*\*http://www.owasp.org/index.php/OWASP\\_O2\\_Platform\*\*](http://www.owasp.org/index.php/OWASP_O2_Platform)



- **Development** versions & Community features will be hosted using SquareSpace web engine at:  
[\*\*http://www.o2-ounceopen.com\*\*](http://www.o2-ounceopen.com)

**OUNCE O2**

Welcome to O2 website. O2 is a collection of Open Source modules that help Web Application Security Professionals to maximize their efforts and quickly obtain high visibility into an application's security profile.

O2 (OunceOpen) originates from OunceCAL's Advanced Research Team (ART) work, where it aims to push to the limit the power of Ounce's Source Code scanning engine (Ounce 6.0).

These tools have been developed by Security Professionals FOR security professionals, and are designed to automate the security consultant's brain.

What is O2

To gain a better understanding of "what is O2" start with this presentation:

Last 5 updates:

- September 3 - Dimis Cruz
- Blog entries on: O2, WAF and Apache
- August 28 - Dimis Cruz
- About O2
- August 27 - Dimis Cruz
- About O2
- August 20 - Dimis Cruz
- O2 Module presentation - Aug 09
- August 18 - Ian Spratt
- The Chief and The Architect

**Traffic Overview**

Statistical data gathered from your website usage logs. Search engine crawls and other specially identified hits are not factored in to your unique visitor counts. This information is updated every minute.

[view hourly](#) | [daily](#) | [weekly](#) | [monthly](#)

Date	Unique Visitors / Page Views
Aug 24	~100
Aug 25	~120
Aug 26	~150
Aug 27	~180
Aug 28	~220
Aug 29	~250
Aug 30	~280
Aug 31	~300
Sep 01	~320
Sep 02	~350
Sep 03	~380
Sep 04	~400
Sep 05	~420
Sep 06	~440
Sep 07	~460

**Traffic Summary**

Metric	Value
Page Views	4,454
Page Views / Week (Avg)	337
Unique Visitors	1,419
Unique Visitors / Week (Avg)	107
Robot Hits	5,713
Robot Hits / Week (Avg)	425

**Traffic Details**

Week	Views	Unique	Robots
Week of Aug 23	70	25	185
Week of Aug 16	573	164	668
Week of Aug 9	482	125	578
Week of Aug 2	339	87	550
Week of Jul 26	413	177	546
Week of Jul 19	355	81	514
Week of Jul 12	300	91	475
Week of Jul 5	475	135	403

## BTW, SOMEBODY should sponsor an OWASP 'Application Security Summit' :)

- Which would be a world wide gathering of security experts with the objective to figure out how to use the current resources (People, Process and Technology) to help customers to fix security vulnerabilities in their applications
- This Summit could be organized by OWASP using the same model used on the last OWASP Summit in Portugal





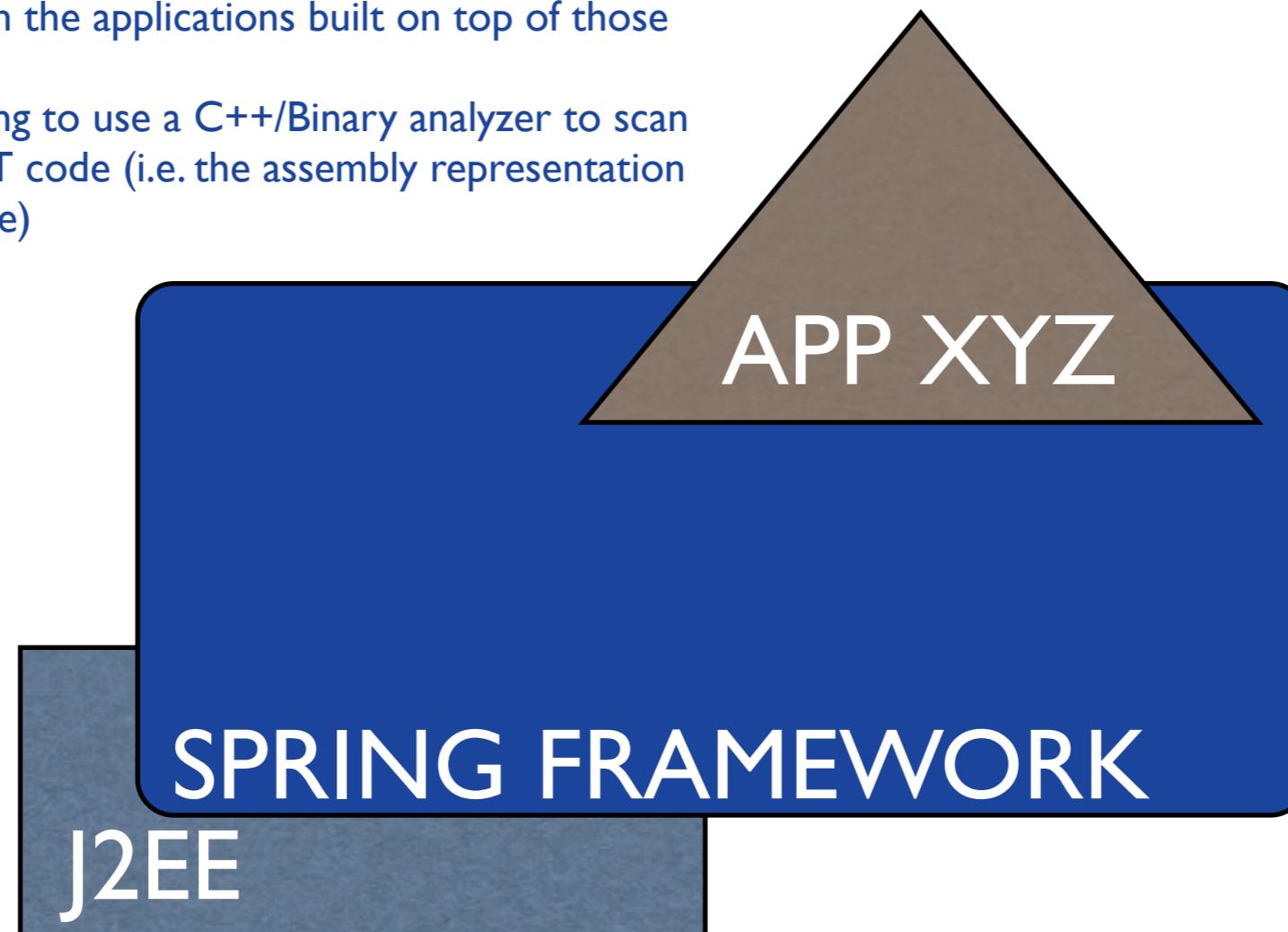
# THE CHALLENGE

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## THE PROBLEM WITH FRAMEWORKS

- For this discussion a ‘Framework’ is an environment which augments the capabilities of the core language implementations (.NET Framework or J2EE). Examples of what I call a Frameworks are: Spring, Struts, Microsoft Enterprise Library, SharePoint, WebSphere Portal, SalesForce API,
- Each Framework creates its own ‘reality’ almost like a VM (Virtual Machine), where they (for example Spring MVC) create an abstraction layer between the core language (i.e. Java) and the target application.
  - So, if the scanning engines (Black Box, White Box, Human Brain) don’t explicitly support frameworks, they will NOT understand how they work they and will NOT be able to find security issues in the applications built on top of those frameworks.
    - It is like trying to use a C++/Binary analyzer to scan JITTED .NET code (i.e. the assembly representation of .NET code)





## SOME TECHNOLOGICAL SOLUTIONS THAT STILL NEED TO BE SOLVED

- All current (Commercial and Open Source) Static Source Code Analysis tools have most (if not all) of the problems below (some have minor/basic coverage of it)
- ANALYSIS ENGINEs - Part I
  - Attributes, Collections & other type of objects that receive taint in A and output it in B
  - Global Variables
  - Proper Taint Propagation across strings and between data types
  - Reflection (which creates 'Hyper Jumps' between code paths)
  - Events
  - Rules based on assemblies/jars versions and not on signatures
  - Taint Typing (also applied to business logic)
- ANALYSIS ENGINEs - Part II
  - Rules Management (user-friendly process to mass create, edit, modify, import and export)
  - Join Traces (between application layers or interfaces or 'Hyper Jumps')
  - Read (and understand) configuration files (who have major impact on the attack surface and exploitability)
  - Auto Attack Surface Markup
  - Expose Control Flow
  - Understand Framework behavior
- GlassBox
  - Integration with WB & BB (driving one tool from the other)
  - Common Reporting
- **Note:** this (list above)  
IS A VERY SMALL & LIMITED LIST of the technologies / techniques that need to be supported when running (manual or automatic, Black or White) scans.  
These capabilities (either when **used by non-expert users** or by expert security consultants) allows the security engagement to be accurate, effective, consumable and actionable

## WHERE WE ARE TODAY and WHERE WE NEED TO BE ASAP



- Here is the evolution of technologies and were the current level of support is:

- **1996-2000:** MainFrames, Web Servers, Java, ASP Classic

- **2000-2004:** C/C++, .NET Framework, J2EE, PHP

- **2004-2006:** Struts, Spring Framework, Ajax, Flash, Hibernate, Microsoft Enterprise Library

- **2006-2009:** lots of web innovation going on, here is a small list:

‘Out of the box’  
capabilities  
is here



O2 is here

**Languages & Technologies:** Aspect, Web Services, REST, Widgets/Gadgets, AIR, Silverlight, Groovy & Grails, Python, Ruby & Ruby on Rails, JSP EL, Velocity, JSF (Faces),

**Application Platforms / Frameworks:** ASP.NET MVC, SharePoint, IBM WebSphere Portal WebSphere Application Portal, SAP (web stuff), iPhone & Apple iStore

**Online Applications:** SalesForce, Amazon Web Services, MySpace/FaceBook/Twitter

**OWASP ‘standards/APIs/frameworks’:** ESAPI, SAMM, ASVF, etc...

And let's not forget that most enterprise applications have their OWN frameworks and APIs (and sometimes even VMs)

- **2010-.... :** Chrome, cloud computing (vSphere (VMWare's cloud), Azure (Microsoft's cloud)), Web 3.0 and next generation of all of the above :)



We need  
to be here  
ASAP



# TO SCALE WE NEED TARGETED SOLUTIONS

---





## HOW TO SCALE: AUTOMATE SECURITY KNOWLEDGE

- The only way we will be able to scale (and have these solutions used by a wide audience (from developer's upwards), is if we are able to '**capture + automate**' **the knowledge, workflow and wisdom of security consultants**. And we need to do this in such a way that repeated analysis by non-technical staff will have the same result has the analysis created by an security expert
  - In a nutshell ... what we need is to do,

**is to automate the security expert's brain ...**

so that we are able to independently use it in a repeatable and consistently way,

and once we have done that (automating their brain) ... we can work on making it

**very simple to use by non-security experts**

And due to the complexity of each targeted application / framework ...

... this 'one button' solution is only possible if ....

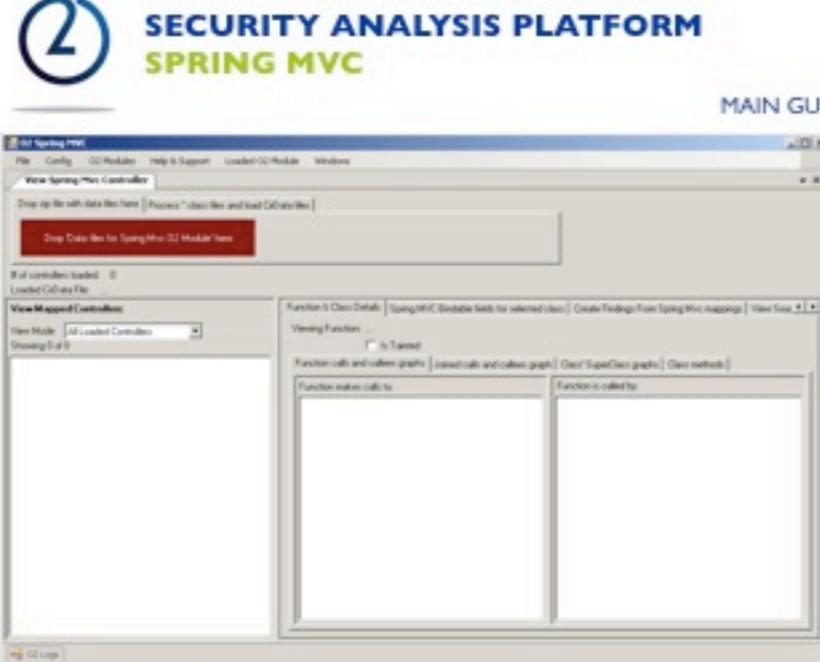
## WE CREATE TARGETED SOLUTIONS & PRODUCT

(see next 4 slides for an example of what this could look like)

Note that today an 'Application Security Analysis' engagement is a very: complex, non-repeatable, non-scalable, non-measurable, and very opaque (from the client point of view) process. It is also very hard to calculate its ROI

## SPRING FRAMEWORK : SECURITY ANALYSIS PLATFORM

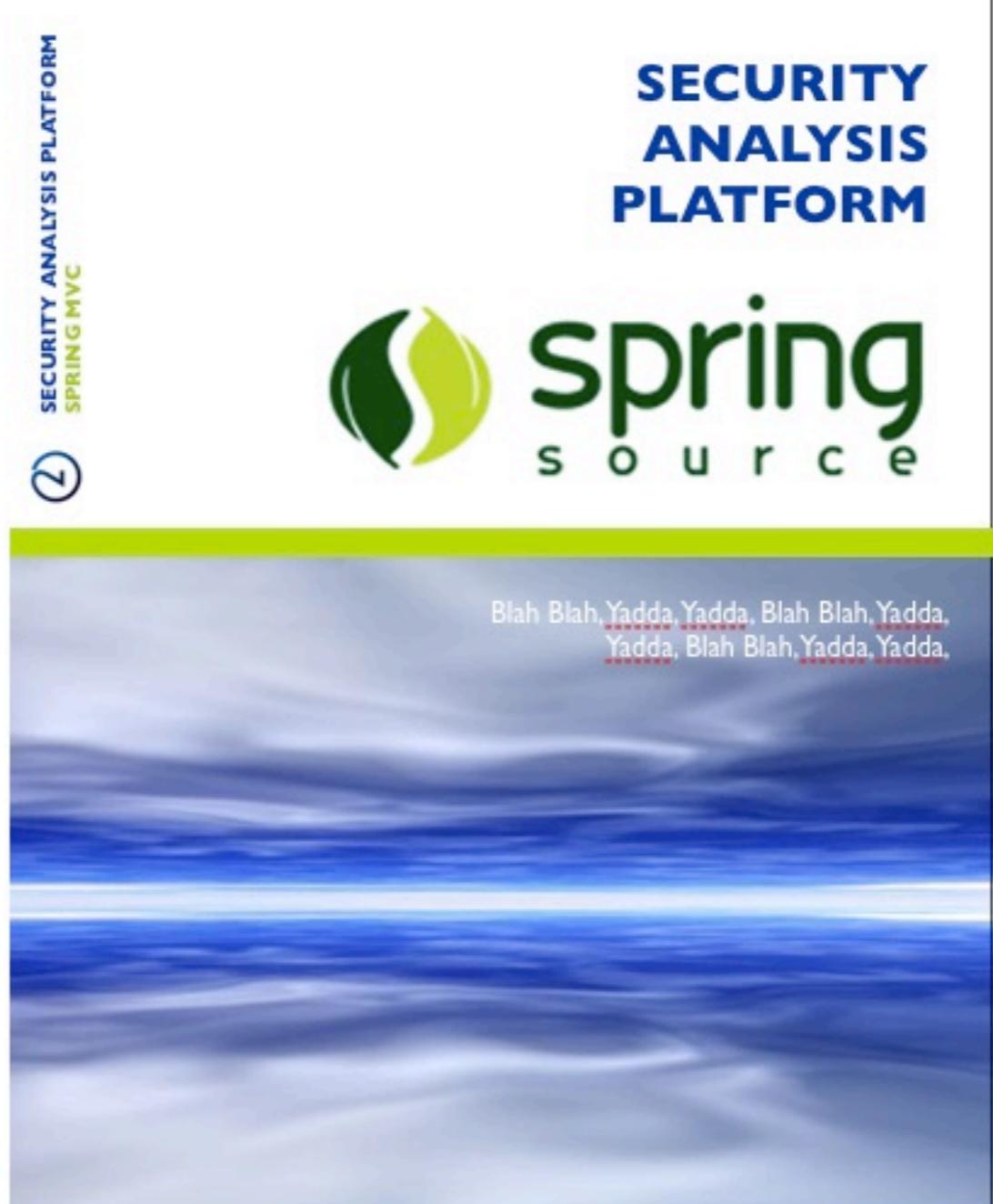
- Due to the complexity and ‘realities’ created by the Spring Framework, the only way to deal to analyze/expose its behavior is to create fine-tune ‘packages’ of the available technology



**DESCRIPTION**

Specifically targeted at the Java Spring MVC framework, this module is able to analyze an application written under this framework and extract its attack surface and exposed internal objects. In addition to powerful visualization tools for the data collected, this module also contains a simple ‘analysis engine’ which creates Spring MVC related Findings

MATURITY	UNSOLVED PROBLEM	SOLVED	PROTOTYPE
O2 Tool - XYZ			▲
O2 Tool - XYZ			
O2 Tool - XYZ			
		▼	
COMMERCIAL TOOLS (\$\$\$)		OPEN SOURCE (FREE)	



SECURITY ANALYSIS PLATFORM  
SPRING MVC

SECURITY ANALYSIS PLATFORM

spring source

Blah Blah, Yadda, Yadda, Blah Blah, Yadda, Yadda, Blah Blah, Yadda, Yadda.

## SHAREPOINT (MOSS) : SECURITY ANALYSIS PLATFORM

- Same think for frameworks & development environments like Microsoft Office Sharepoint Server (MOSS). Unless we have a customized engine & technology that understands Sharepoint, it is very hard (if not impossible) to (for example) write secure web parts.

The image contains two main parts. On the left is a circular diagram illustrating the SharePoint architecture. It features a central green circle labeled 'Platform Services' surrounded by four concentric rings. The innermost ring contains 'Management', 'Workspaces', 'Search', and 'Storage'. The next ring out contains 'Topology', 'Security', and 'Deployment'. The outermost ring contains 'Business Processes', 'Content Management', 'Search', and 'Collaboration'. A small '2' logo is in the top left corner of the diagram area. On the right is an advertisement for 'Microsoft Office SharePoint Server 2007'. It features a large '2' logo at the top left. The text 'Microsoft Office SharePoint Server 2007' is at the top, followed by 'SECURITY ANALYSIS PLATFORM' in large blue letters. Below that, a banner states 'Security Analysis Platform specifically customized for Microsoft's Office Sharepoint Server (MOSS)'. The background of the ad shows a stylized globe.

## SHAREWORKZ SECURITY ANALYSIS PLATFORM

- .... and the same thing applies for applications built on top MOSS (which also create their own reality and unique class of vulnerabilities (before & after customization)
  - quote from [www.shareworkz.com](http://www.shareworkz.com): "... ShareWorkz helps you get the most from Microsoft SharePoint – quickly! Built in SharePoint Server 2007 Standard Edition, ShareWorkz reduces the time to build and deploy a best practice, enterprise class SharePoint 2007 Solution to 1 month or less..."



The diagram illustrates the ShareWorkz Security Analysis Platform architecture and its collaborative layers:

**Architecture:**

- ShareWorkz Core Components:** The central layer, shown as a stack of components including "ShareWorkz Unified User Interface", "ShareWorkz Template Libraries", and "ShareWorkz Core Components".
- Windows SharePoint Server:** The middle layer.
- Microsoft SQL Server:** The bottom layer.
- Microsoft Windows Server:** The base layer.
- External Systems:** Integrated via "BizTalk Server", "Office System", "SharePoint Portal Server", and "MS CRM".

**Collaboration Layers:**

A circular diagram shows concentric layers of collaboration:

- ShareWorkz CORE:** The innermost red circle.
- Intranet:** The green ring, divided into "Intranet - Information Collaboration", "Intranet - Project Collaboration", "Intranet - Process Collaboration", and "Intranet - Community Collaboration".
- Extranet:** The outer rings, divided into "Extranet - Information Collaboration", "Extranet - Project Collaboration", "Extranet - Process Collaboration", "Extranet - Community Collaboration", and "Extranet - Complex Multi-party Collaboration".

**ShareWorkz SECURITY ANALYSIS PLATFORM**

The platform is represented by a stylized orange cylinder with various colored components (red, green, blue) inside, with the ShareWorkz logo and the text "SECURITY ANALYSIS PLATFORM" to its left.



## OPEN SOURCE SECURITY ANALYSIS PLATFORM

- The Open Source community also needs a generic platform made up of only Open Source or free tools.
- This is a very CRITICAL piece of the puzzle, since this is what will enable the wide use of these techniques across the Open Source and Commercial Software development world (it will also allow the Framework developers to be responsible for creating their markups (after all, who better than the Spring developers to help with the development of the “Spring Framework : Security Analysis Platform”)

**PLATFORM**

**OPEN SOURCE**

**SECURITY ANALYSIS PLATFORM**

Blah Blah, Yadda, Yadda, Blah  
Blah, Yadda, Yadda, Blah  
Blah, Yadda, Yadda,

Thank you ....