



# Beam me up Scotty!

Re-working the Data Model with Enterprise Architect



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# Presentation Overview

Enterprise Architect (EA) by Sparx Systems is a leading-edge data modeling tool (among other things!). Both the ArcGIS Pipeline Data Model v6 and PODS ESRI Spatial v6 have been migrated to EA format. This presentation will describe the subset of tools used to migrate these models to EA format. Some concrete examples will be provided using the latest releases of APDM and PODS ESRI Spatial. Some thoughts about the future direction of pipeline data models will be discussed to infinity and beyond!

- What is Enterprise Architect?
- Past Tools/Methods
- Subset of Tools
- Concrete Examples - APDM 6.0, PODS ESRI Spatial
- Report Card
- Musings

# Introductions

- Peter Veenstra - Willbros Engineering, Kansas City, MO, USA
- Narmina Lovely - BHPBilliton, Houston, TX, USA
- Ben Constable - Sparx Systems, Creswick, Victoria, Australia



<http://www.sparxsystems.com/>





# What is it?

UML Modeling and Lifecycle Tool Suite

Model | Design | Construct | Test | Deploy | Manage

An agile, cost-effective modeling, design and management platform that accelerates and integrates Software, Business and Systems development

Modeling Software - UML, Mind Mapping, Data Flow

Framework for Modeling

ArcGIS Geodatabase Design Tool - utilizes XML Workspace Import/Export functionality native to ArcCatalog





# REDSHIRTS

Well, gentlemen, you're all going to die.

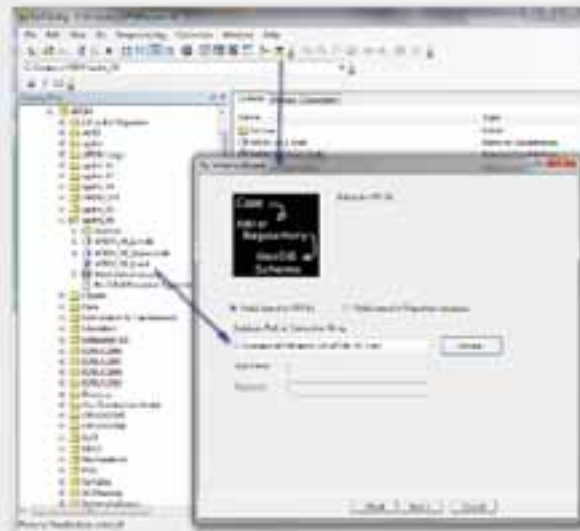
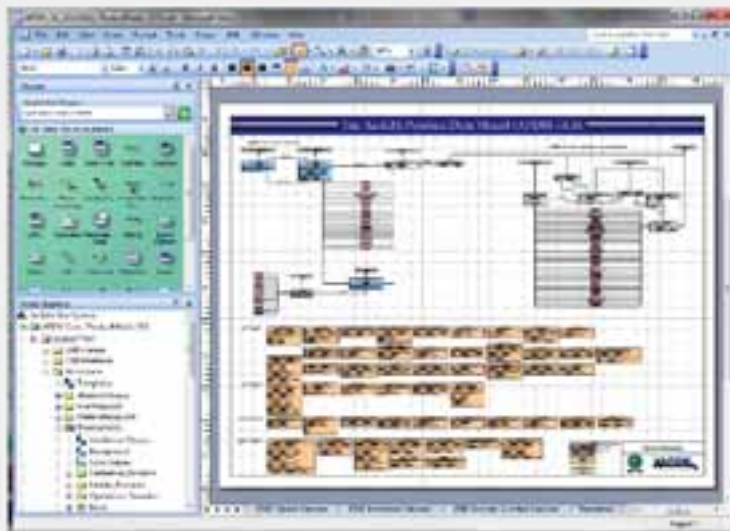
# Where have we been?

GIS Diagrammer  
(<http://tinyurl.com/495fkyu>)



XRay - Vertex 3  
(<http://tinyurl.com/kxpbda>)

Visio UML Modeling\ESRI Case Tool Import - ArcCatalog







# Enterprise Architect - Subset of Tools

Base Functionality - toolbar, diagrams, packages, hyperlinks, documentation

Import from Visio UML and from ArcGIS XML Workspace

Organization of Model

Validation of output XML Workspace before import into ArcCatalog

Modularization

Base Line (Documentation, Delta)

Multiple Inheritance (Abstract Class Hierarchy)

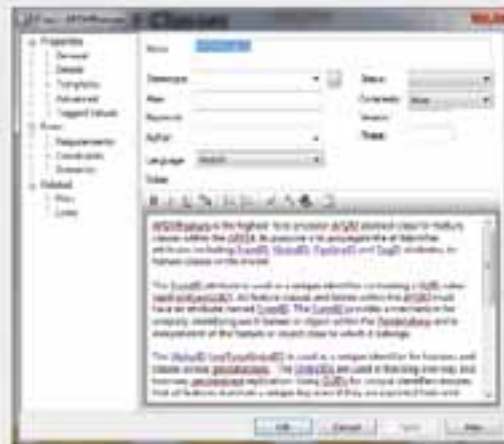
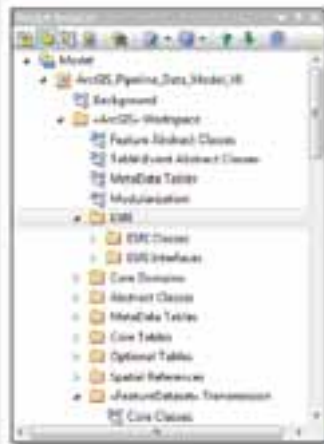
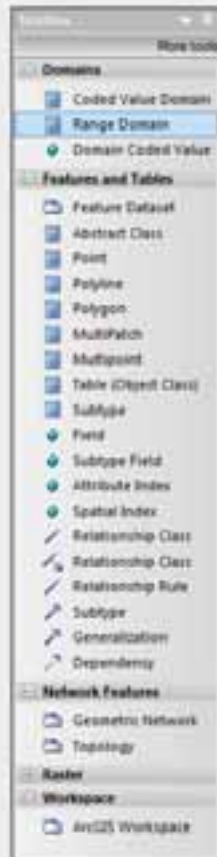
Script and Query Engine





# EA Tools - Base Functionality

Base Functionality - toolbar, diagrams, packages, hyperlinks, documentation, find



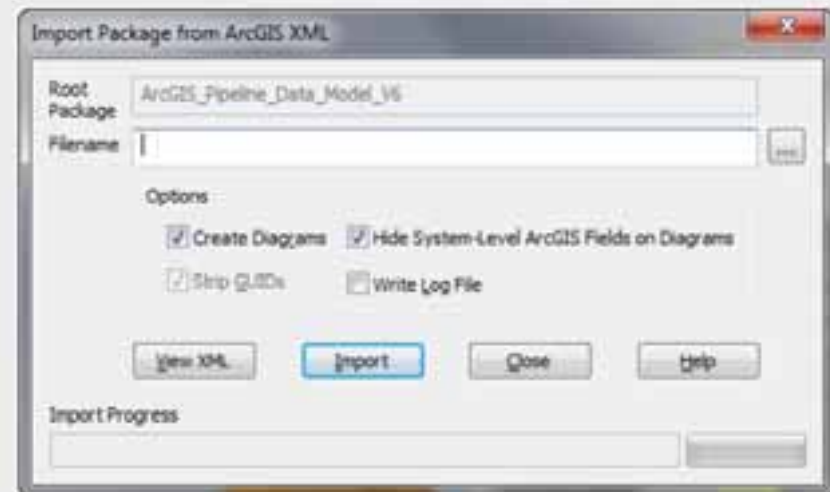
Demo HTML Doc  
Demo PDF Doc



# EA Tools - Import to EA

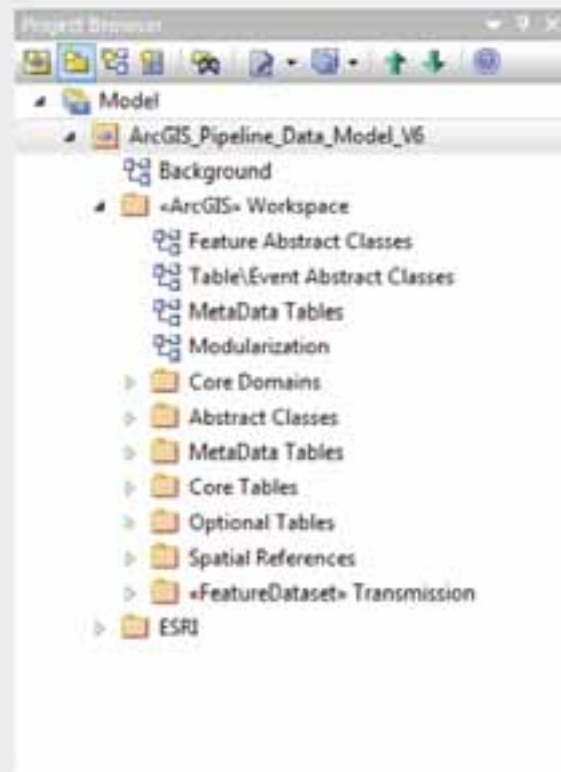
Import from VISIO UML Drawing

Import from ArcGIS XML Workspace



# EA Tools - Organization of the Model

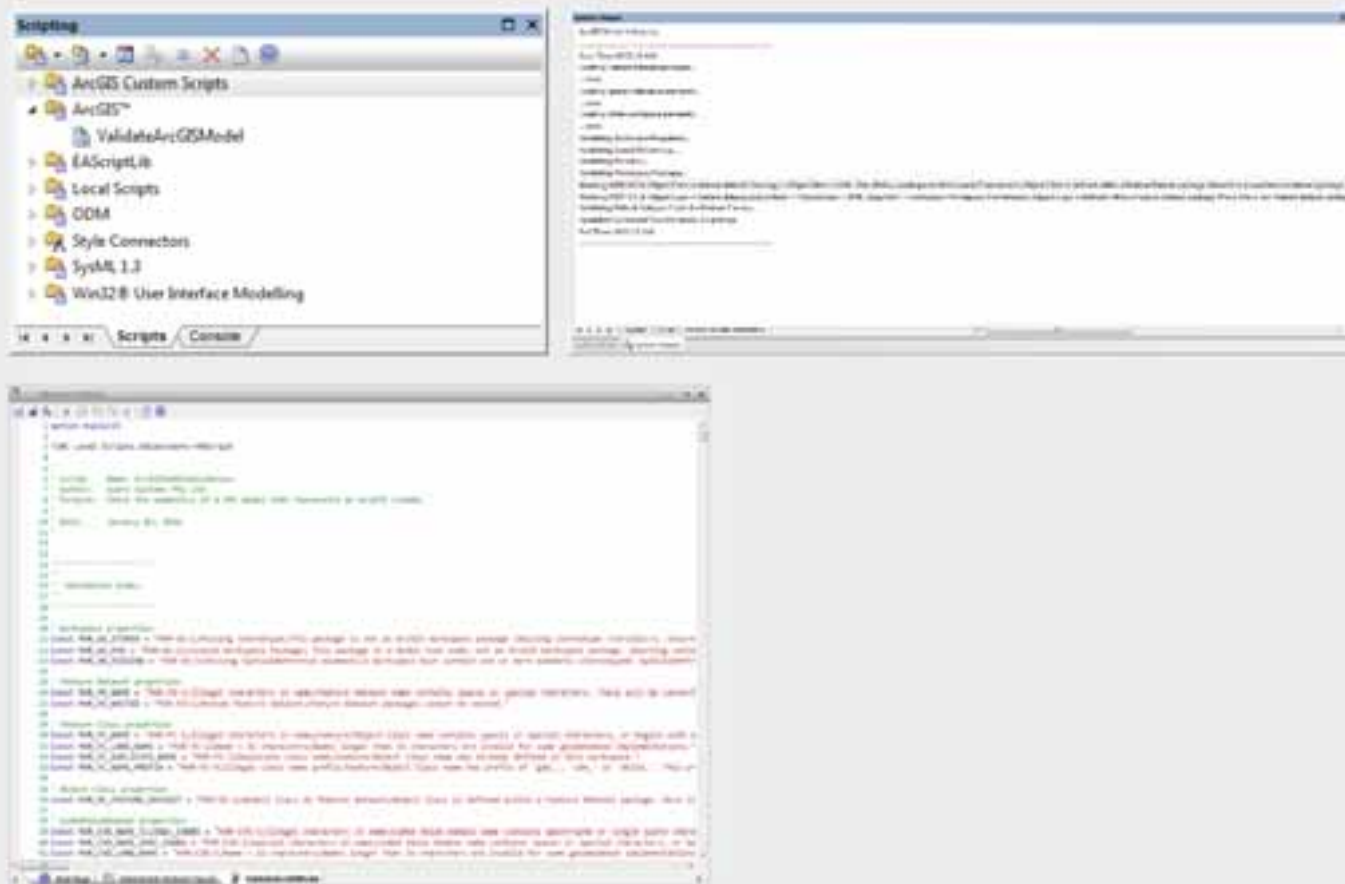
## Organization of Model



Demo in EA

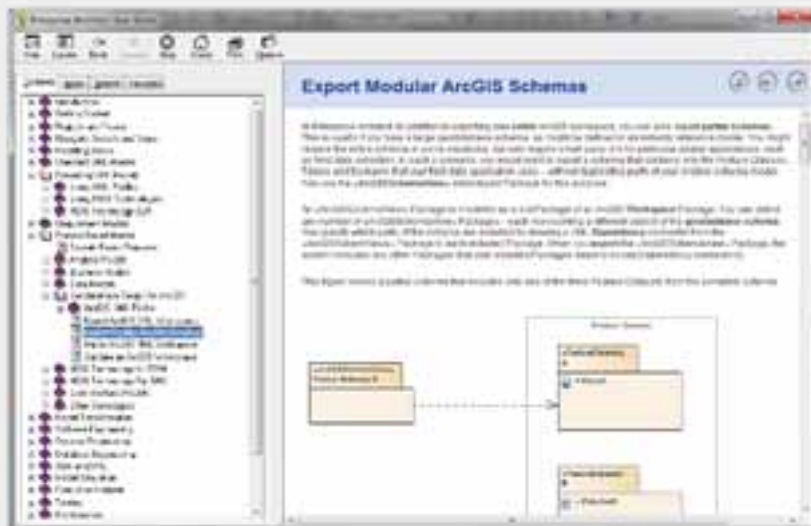
# EA Tools - Model Validation

Validation of output XML Workspace before import into ArcCatalog



# EA Tools - Modularization

Ability to generate partial schemas from a single-standard model without having to re-design the entire model or maintain separate models.



[Demo PODS Modularization PDF](#)

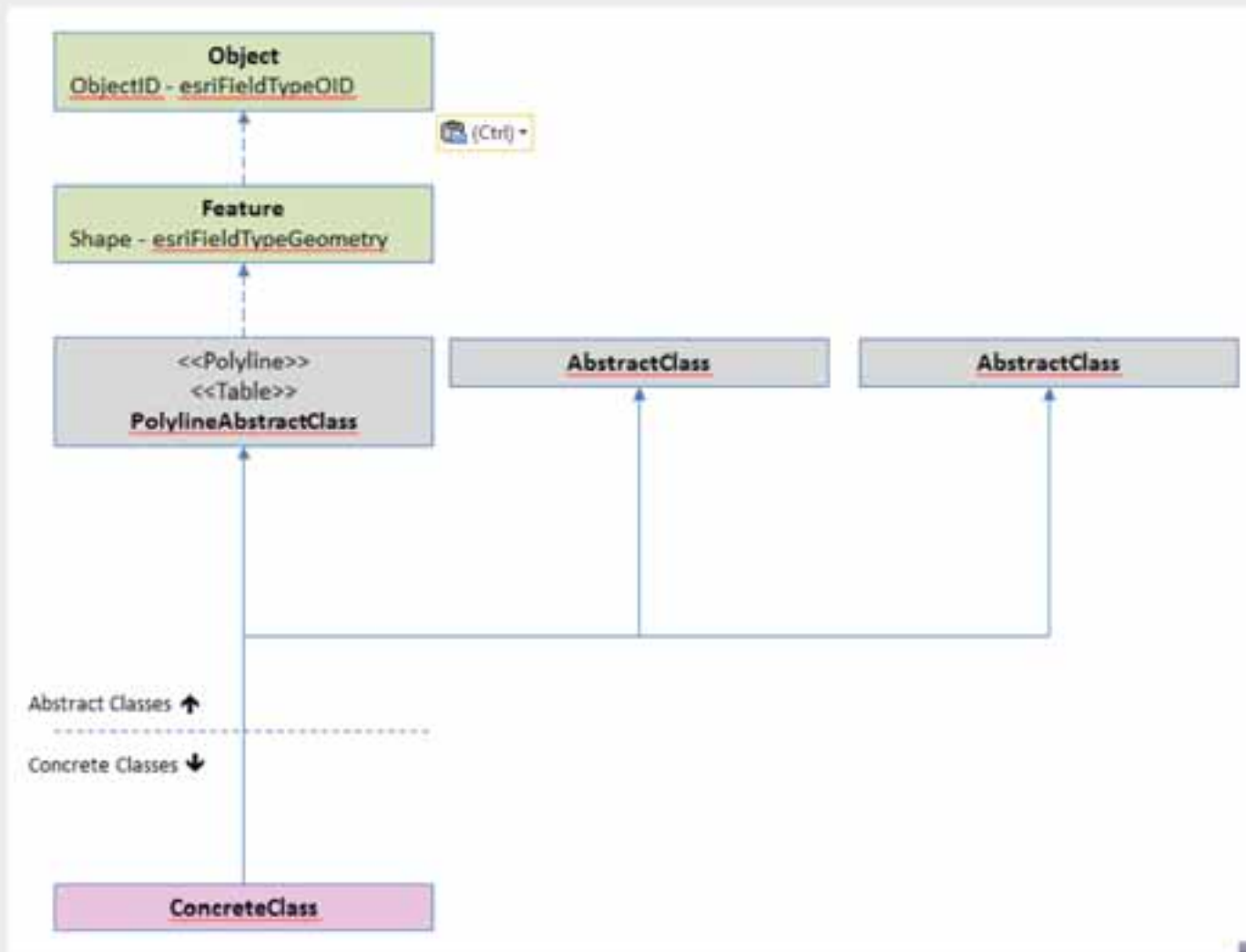
[Demo Help](#)

[Demo in EA \(Show Modules\)](#)



# EA Tools - Multiple Inheritance

## Multiple Inheritance (Abstract Class Hierarchy)



Show Abstract  
Class Hierarchy  
in EA

# EA Tools - Script and Query Engine

## Script and Query Engine

The screenshot displays the 'Tool in Progress' window of the EA Tools Script and Query Engine. The window title is 'Tool in Progress'. The search term is 'Find Relationship Classes - Go to Conn...'. The SQL query is as follows:

```
SELECT t_connector.Name AS ConnectorName, t_object.Name AS OriginClass, t_connector.ea_guid AS CLASSGUID, t_connector.Connector_Type AS CLASSTYPE
FROM t_object, t_connector
WHERE t_connector.Stereotype = "RelationshipClass" AND t_connector.Start_Object_ID=t_object.Object_ID
```

The results are displayed in a table with the following columns: ConnectorName and OriginClass.

ConnectorName	OriginClass
Inspector	Contact
Contact Likes	Contact
InitialAssessor	Contact
Contact Documents	Contact
Contact Activities	Contact
Activity Document	Activity
Activity Additional Format	Activity
Activity To Cross Ref	Activity
Child Activity	Activity
Parent Activity	Activity
Activity Inspection	Activity
Line Loop Condition Or Ass	Line Loop
Line Loop Coating	Line Loop
Line Loop Crossing Locate	Line Loop
Line Loop Bends	Line Loop
Line Loop Inspection	Line Loop
Line Loop Facility Port	Line Loop
Line Loop Regulatory Seg	Line Loop
Line Loop Sub System Plan	Line Loop
Line Loop Owner Operator	Line Loop
Parent Line Loop	Line Loop
Line Loop Valves	Line Loop
Line Loop R/S	Line Loop

The interface also includes a 'Search Builder' tab, a 'SQL' tab, and a 'Find in Project' button.

Demo in EA



**Can you hear me now, Spock?**







# Concrete Examples

APDM 6.0 - Demo in EA

Modularization - Demo in PDF

PODS Relational >>> PODS ESRI Spatial 5.1 - Demo in EA

**WARNING!**

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**RED SHIRTS  
MAY BE HAZARDOUS  
TO YOUR HEALTH!**

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**WEAR AT YOUR OWN RISK**



# Report Card

Criteria	Score
Functionality	A+
Modularity	A
Validation	A+
Delta on XML Workspace Import	C -
Vendor Support	A+
Other Data Types (Annotation, Dimensions)	??
Vertical Datum	A+
Graphic User Interface	B
Multi-User	A
File Size	A

<http://ideas.arcgis.com/ideaView?id=087300000008DjeAAE>

<http://ideas.arcgis.com/ideaView?id=087300000008GyNAAU#comments>



# Where to go from here?

## **SPARX**

<http://www.sparxsystems.com> (10.0.1.0 released, this presentation 11-beta)

<http://www.sparxsystems.com/arcgis/index.html>

<http://www.sparxsystems.com/arcgis/model-validation.html>

<http://www.sparxsystems.com/bin/arcgis-enterprise-architect-uml-modeling-tutorial.pdf>

<http://sparxsystems.com/resources/demos/requirements-management/requirements-reporting.htm>

<http://sparxsystems.com/resources/demos/reporting/webinar-20121219-enhanced-reporting.html>

## **APDM**

<http://www.apdm.net> (will be online next week)

<https://www.linkedin.com/groups/APDM-ArcGIS-Pipeline-Data-Model-155824/about>

## **PODS**

<http://www.pods.org>

## **ESRI**

<http://www.esri.com/industries/pipeline/community/datamodel>

[http://downloads2.esri.com/support/TechArticles/Pipeline\\_Data\\_Model.pdf](http://downloads2.esri.com/support/TechArticles/Pipeline_Data_Model.pdf)

## **EMAIL**

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# The end ....

Thank you to ...

ESRI - Petroleum User Group

Tom Coolidge - ESRI Pipeline Industry Manager

Narmina Lovely - BHPBilliton

Pipeline Open Data Standard (PODS)

Ben Constable - Sparx Systems

Live long and prosper ...



STARRING  
WILLIAM  
SHATNER





You Tube





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