Integrating ASCE with other safety tools

Luke Emmet
loe@adelard.com

© Adelard, College Building, Northampton Square, London EC1V 0HB
+44 20 7490 9450
www.adelard.com
Summary

- Generally focusing on publicly available plugins
- How/Why
  - Why do this?
  - Use ASCE’s plugin architecture
- Now - available plugins
  - Hazard Logs
  - Other evidence
- Future
  - In development
- Your input
ASCE v4 architecture and integration

ASCE User interacts with ASCE Application, which includes Menus and forms, Display engine, Core object model, and ASCE COM interface. ASCE Developer customises or develops these components.

External files and evidence sources interact with ASCE Application through COM. ASCE Developer defines notation used by ASCE User.

External applications also interact with ASCE Application through COM.
Integrating with other safety tools

- Plugin engine
  - DNRs are most common approach
  - As evidence
- Goal: to make use of the investment a project makes in its safety information
  - Reuse, reducing copy/paste, managing change
  - ASCE DNRs
    - External tools as evidence source
    - Detect change in **content** not just existence (hyperlinks)
- Alternatively
  - External tool to do some service (e.g. computation) – plugged into ASCE
  - Synchronise with external tool
Now
Now – Hazard Logs

- A common source of evidence in the safety case
- Show status of key risks
  - What controls are in place
  - For some hazard or accident?
  - Slice and dice from different viewpoints
- Show summary picture in aggregate
  - Populated risk matrix
  - Number of open/managed/ALARP
  - Advanced reporting (e.g. Nomograph)
- Each Hazard Log tool has its particular strengths
Hazard Logs - eCassandra

- eCassandra/desktop Cassandra
  - Can link to eCassandra on the RLI
  - Can extract from exported MDB files
  - Formal integration between tools

- Status
  - Available now
  - ASCE plugin available out of the box
Hazard Logs – home grown

- Access/Excel still a widely used format for home brewed hazard Logs
  - Simple to administer and manage
  - Flexibility to do it your way
  - But need skills in database design
- Can use Basic Access/Excel plugin to extract and report on these Hazard Logs
  - Or adapt to reflect internal design decisions
    - Some ASCE customers already doing this
  - Can be used to interface to non-Microsoft databases via ODBC
- Status
  - Available with ASCE
Coming soon / In development...
Hazard Logs – The Hazard Tool

- The Hazard Tool
  - Developed by Tessella for MoD
  - Funded by DOSG
- Has XML format
  - Makes querying by ASCE relatively straightforward
- Has some interesting features
  - Risk “Nomographs”
    - A pivoting “slide rule”
    - More sophisticated than simple Risk = severity X probability
- Status
  - Work currently funded by DOSG to provide an integration between ASCE and THT
  - Should be available early 2012
The Hazard Tool – Hazard editor
The Hazard Tool – Risk Nomograph
Coming soon: Rational DOORS

- **DOORS**
  - A commonly used requirements manager
  - Seen on some larger Defence and Rail projects
  - A text database with paragraph level traceability
- **Often used to manage safety and functional requirements**
- **Status**
  - A simple ASCE plugin already exists
    - Summarise a module (collection) of requirements
    - Or individual one
  - Following user feedback we will be releasing this next year
Other tool integrations

- So far have covered DNR type plugins
  - To manage and report on diverse evidence into the safety case
- Other integrations are possible
  - Custom schema with component failure rates
    - Could be looked up from an external tool doing the analysis
  - Could use ASCE’s display engine to decorate nodes of interest
  - Could synchronise with other systems
    - Create a node in ASCE for every X in tool Y
- Status
  - Depends on interest and funding
  - Adelard: probably done as a custom project
  - Your organisation: have a bright software person use the ASCE plugin documentation
Which other important safety tools?

- What other safety tools could provide significant benefit:
  - Synchronised with ASCE
  - Important evidence source – need change tracking in safety case
  - Are in widespread use

- Shout out now – or come and chat over coffee
Conclusions

The World = Your Oyster!
End of slides