

Pushing the Limits

API integration in Notes application

Reshape your world, Use Notes to the fullest

Introduction: Ben Langhinrichs

- President - Genii Software Ltd.
 - Founded in 1992 (OS/2 utilities)
 - First Notes product in 1995
 - IBM/Lotus Business Partner since 1995
 - Based in Cleveland, Ohio, U.S.A.
 - Customers in 46 countries
- Member - The Penumbra Group

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Genii Software – Current Products

Coexistence Solutions

- CoexEdit: Notes/Web editing coexistence
- CoexLinks: Notes/Outlook e-mail coexistence

Rich Text Tools

- Midas Rich Text LSX
- Midas Rich Text C++ API
- @Midas Formulas

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Development without extensions

- Thinking inside the box
 - Most of what we all do every day
 - Sufficient for most purposes
- Thinking outside the box
 - Finding ways to bend the rules, work around the limitations, use features in ways not quite intended.
 - Handling the special cases

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Development with extensions

- Breaking open the box
 - Breaking established rules that are hindering progress
 - Building things that “can’t be done”.
- Building a new box
 - Concealing proprietary business logic
 - Hiding “the ugly” so users can focus on results

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Great variety of software extensions

- Separate executable with Notes logic
- Server task
- Import/Export filter
- Database driver
- Extension manager/hook driver
- LSX (LotusScript extension)
- Add-in menus

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Great variety of software extensions

- Separate executable with Notes logic
 - Stand alone application that use Notes data as a backend data store.
 - Application triggered from to handle discrete task such as a report writer.
 - Application that handles multiple systems, including Notes/Domino, with its own front end.
- Not exactly an “extension” by my definition.
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Great variety of software extensions

- Server task
 - Executable without user interface
 - Plays same role for Domino that separate executable plays for Notes
 - Good for processes that can be spun off, such as ZMerge, which exports data in batch mode.
- Close to an extension, but not quite.

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Great variety of software extensions

- Import/Export filter
 - Extends basic File-Import and File-Export action items.
 - Powerful way to incorporate new data into Notes, or take data out in a structured way.
 - Easy to understand for users
 - Ability to add simple UI as needed.
 - Can be based on whole view or single document

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Great variety of software extensions

- Database driver (original purpose)
 - Good for retrieving non-Notes data from inside formula language with @DbColumn/@DbLookup
 - Highly recognizable syntax and function
 - Allows use almost everywhere in Notes
 - Extends with @DbCommand to allow send data and commands out to external database.

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Great variety of software extensions

- Database driver (new purpose)
 - Easy way to extend Notes/Domino formulas since R3 with commercial products such as Formula One Toolkit and @YourCommand Toolkit
 - Highly recognizable syntax and function
 - Allows use almost everywhere in Notes
 - @DbCommand for functions, and @DbColumn/@DbLookup for treating all data as tables, in and out of Notes

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Great variety of software extensions

- Extension manager/hook driver
 - Operates “under the covers”
 - Good for plug-in extensions
 - Works on any database, even with locked design
 - Requires some understanding of where actions happen

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Great variety of software extensions

- LSX (LotusScript extension)
 - Adds functionality to LotusScript
 - Integrates into the core of business logic
 - Should be consistent with scripting conventions
 - Can extend Java simultaneously
 - Good for protecting business logic and hiding ugly

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Great variety of software extensions

- Add-in menus
 - Good for user interaction
 - Context sensitive
 - Use in design phased out in ND6
 - Feels natural to users
 - Works with locked database designs
 - Lack of cascaded menu makes less useful

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C API vs. C++ API

- C API
 - Low level – closest to the metal
 - Always up to date with latest Notes/Domino release
 - Takes a lot of steps to do simple things
 - Available on all platforms
- C++ API
 - Sometimes out of date or not on all platforms
 - Easy to access Notes constructs with fewer steps

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Tips for successful API development

- Get comfortable with the command line
- Make sure Notes executable directory is in path
- Start with samples of type you want to build and make sure they work first
- Be clear whether NotesInit/NotesTerm are needed
- Be aware of Notes front end vs. back end

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Tips for successful API testing

- Be sure which extensions require NOTES.INI changes.
- Always assume you should stop Notes/Domino before testing
- Keep variables to a minimum until basics work
- Be clear on whether effects will be visible immediately – they often are not

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Issues: Character sets

- LotusScript uses Unicode, the C API uses LMBCS, external data may be anything
- Character set translation services (NLS_*) are available in C API
- Extension may work with German or English, but will it work with multi-byte characters? Does it need to?

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Issue: Resource contention

- Operating under the covers means being twice as careful about deadlocks.
- Don't just assume a file, document, service is available if you have a way of testing.
- Most actions taken through the API are safer than those taken outside it, since Notes/Domino use the API themselves for resource allocation.

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Issue: Memory management

- The easiest thing to add to Notes is memory leaks
- Handles must be allocated and de-allocated systematically.
- It is generally better to manage your own memory than to assume it will be done for you.

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Issue: Deployment

- Don't build it if your company or customers won't roll it out.
- Techniques available for auto-deployment of some extensions.
- NOTES.INI changes require some planning.
- Think about naming to avoid conflicts.

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Issue: Buy rather than build

- If a 3rd party product does the job, do you really want to compete?
- If an API is available, use it rather than re-inventing the wheel.
- Focus on business logic rather than bells and whistles. Buy bells and whistles if you need them.

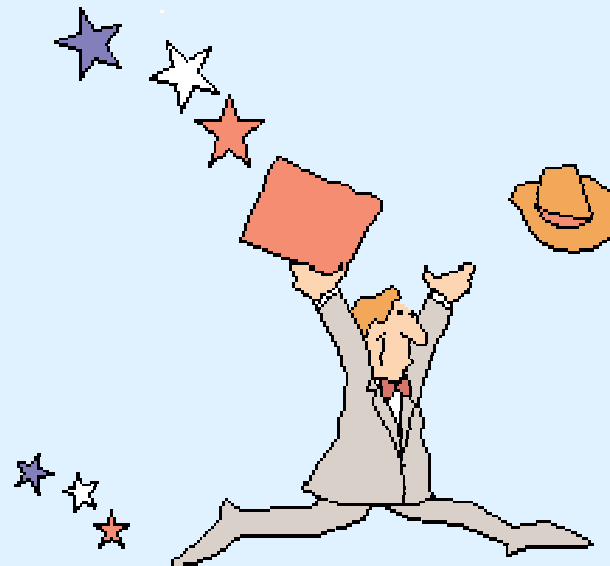
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Example: Export HTML

- Export filter menu add-in
 - Uses a 3rd party API (Genii Software's Midas Rich Text C++ API) to handle HTML generation.
 - Adds convenient way for users to export to popular format
 - Can export selected document or single document

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Demo: Export HTML



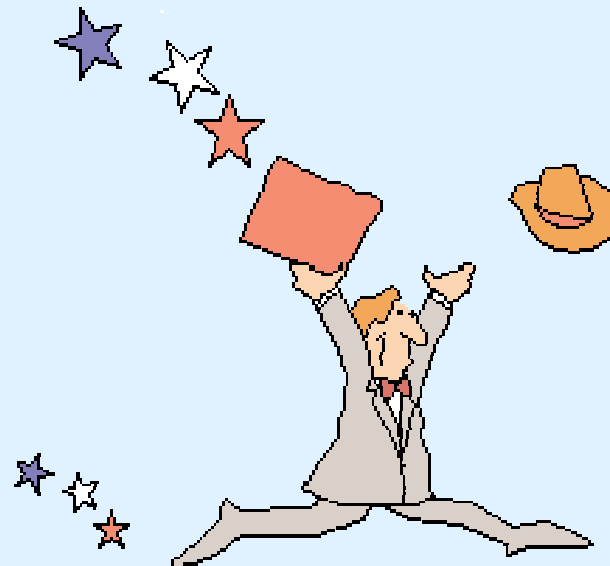
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Example: MySort

- Database Driver DLL
 - Includes code to handle arguments easily
 - Allows you to add your own custom sort function
 - Good base for starting with
 - Shows how flexible arguments can be

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Demo: MySort



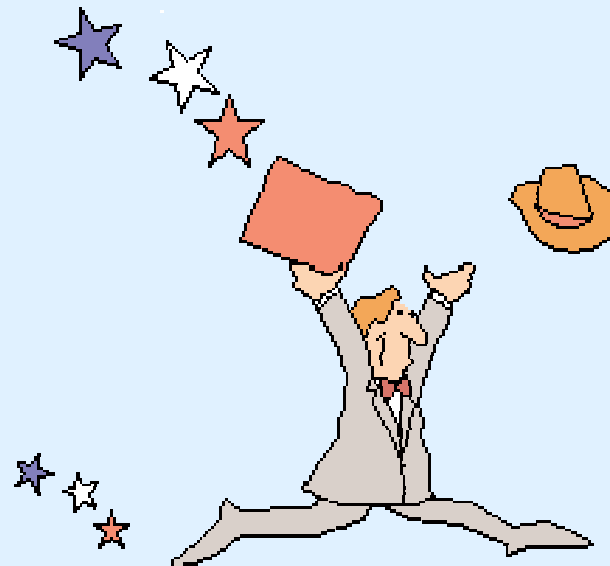
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Example: Footprints

- Hook driver DLL
 - Reads documents opened by user
 - Creates log of accessed documents when FootPrint document is created.
 - Shows how hook drivers can be used for tracking

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Demo: Footprints



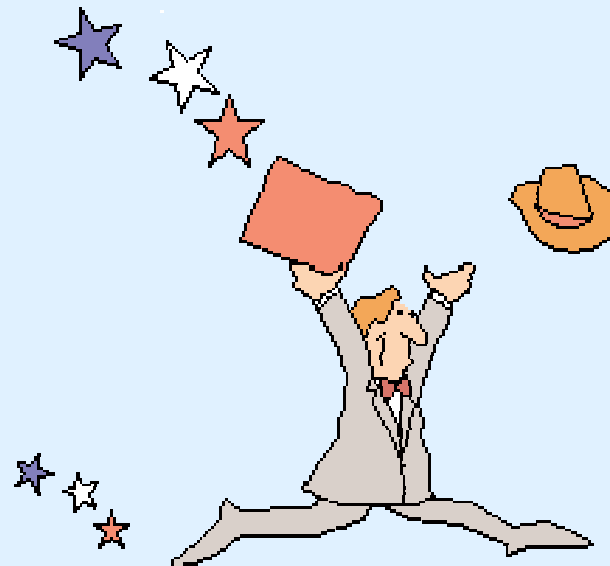
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Example: Grab It! LSX

- LotusScript extension
 - Uses MS WinHTTP API
 - Grabs a file from a URL
 - Shows how LSX can be integrated into application.

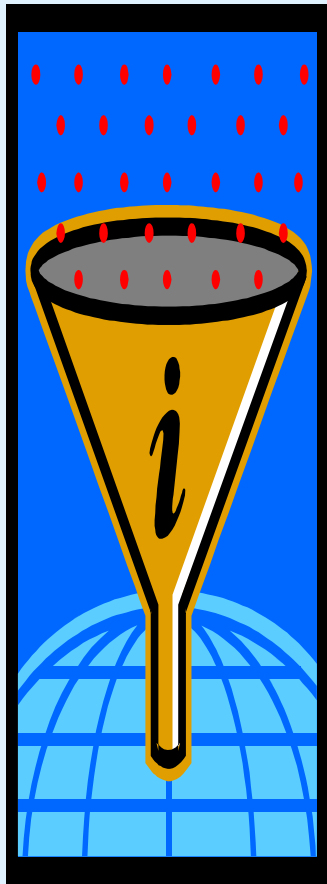
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Demo: Grab It! LSX



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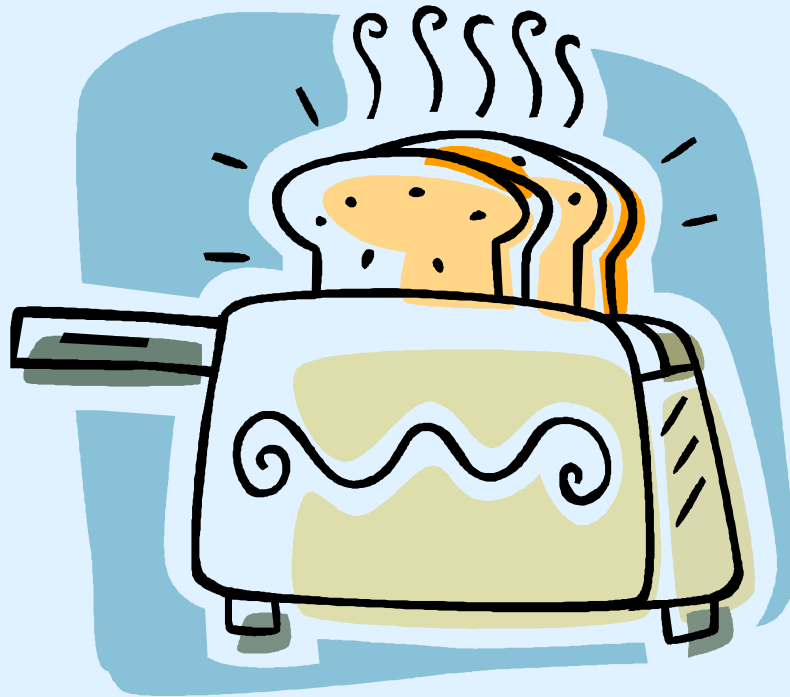
More information



- GeniiSoft.com – Midas Rich Text products
- <http://GeniiSoft.com/showcase.nsf/GeniiBlog>
– Lots of information about rich text, API extensions (and Mike Midas too)
- Gold forums (ND6/7 and R4/R5)
- Others weblogs:
 - <http://www.LotusGeek.com> (Notes and more)
 - <http://www.AlanLepofsky.net> (Cool tips)
 - <http://www.EdBrill.com> (IBM perspective)

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Q&A: Are we done yet?



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