



Blaise



“Working in other languages”

or “You want to do what!?”

Why?

- One of the users wanted to get at things from R
- There is an R<->.Net module which creates a bridge and uses a .Net based DLL to serve data items to R (see rDotNet)
- Alas this has been pulled from CRAN
 - Something to do with no-one fixing some reported issues
- Can we implement an alternative?



What?

- rDotNet does a good job of integrating types, assigning data in an R program, communicating with the bridge and loading routines out of a .Net DLL using Reflection
- This comes at the cost of complexity
- Alternative: move only what we want over the network and let the client and server side each take care of any conversion
- This comes at the cost of more work for the client but gives the client control over what to do



How...

- Server POC
 - written in C#
 - uses TcpListener to listen for incoming connections
- Client POC
 - uses TCP/IP sockets to communicate with the server
 - sample code in C#, Python, R, Tcl

BUT...



Change of protocol

- Move to HTTP protocol to send and receive messages
- Server v1
 - written in C#
 - uses HttpListener
 - does the heavy-lifting for us
 - has access to various items e.g. inputstream, certificates, encoding, cookies, headers etc.
- Client v1
 - uses HTTP modules to POST requests to the server
 - C# and Tcl versions

BUT...



DataGrid

- Set up an appropriate control
- Get records
- Display the records on the control

GridEdit Connect Serverparks and instruments Editor

Show 10 entries

	X.1. ♦	X.2. ♦	X.Here. ♦	X.1..1 ♦	X.Fred. ♦	X.1..2 ♦	X.10.10.2000. ♦	X.1..3 ♦	X.2..1 ♦	X.. ♦	X.Dave. ♦
1	1	2	Here	1	Fred	1	10-10-2000	1	2		Dave
2	2	1	There	5	Leslie	2	10-06-1952	2	1	3	

◀

Showing 1 to 2 of 2 entries

BUT...



Field names

- Get the field info
 - in this case the name of the field
- Change the names of the columns to the new names

Show 10 entries


	HouseHold.HHSize	HouseHold.Person[1].Name	HouseHold.Person[1].Age	HouseHold.Person[2].Name	HouseHold.Person[2].Age
1	1	Dave	42		
2	2	Art	44	Bart	33
3	2	Betty	33	Garfield	34
4					

BUT...



Edit

- Enable editing at cell level, observe the endedit event and save the number of the row that has been changed
- Provide an update button, observe the click event of the button and send the updated rows to the server

GridEdit 

Show 10 entries Search: _____

	HouseHold.HHSize	HouseHold.Person[1].Name	HouseHold.Person[1].Age	HouseHold.Per:
1	1	Davey	42	
2	2	Arthur	44	Bart
3	2	Betty	33	Garfield
4				

Showing 1 to 4 of 4 entries Previous **1** Next

BUT...



Other things we can do

- Get the text of the field out
 - affected by role, mode and language
- Present the text on the screen next to an inputbox
 - thereby showing values in context
- Send any altered values back to the proxy
 - can update the cached record
 - can run the rules to see what happens to the route
- Deliver fields together so that they can be displayed on a page
 - allows more data to be entered locally before being sent to the proxy for further evaluation
- Get the field definitions
 - affects the display (lookup, enum etc.)
 - used to limit data input (range, type etc.)

BUT...



Demo

- R/Shiny
- Tcl basics
- Python basics
- C#/WPF
- C#/Avalonia

BUT...



That's all folks...

- Thank you very much and...

Goodbye...

