



Blaise Team Presents

IBUC, September 15, 2020



Statistics Netherlands

Today's Program

Time	Activity	Presenter
8:00 – 9:00	New Features	Roger Linssen
9:00-9:30	Apps	Loek Rouschen
9:30-10:00	CMA	Lon Hofman
10:00-10:15	Break	
10:15-11:00	Layout	Tessa Carati
11:00-11:30	Blaisium	Angelo Pascale
11:30-12:00	Colectica	Jeremy Iverson & Dan Smith

Questions

- Please ask your questions by using the Q&A feature of Zoom
- We will try to answer as many questions as possible at the end of the presentations





Blaise Team Presents New Features

IBUC, September 15, 2020



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Blaise 5.8 New Features

#	Feature	Status
1.	Paradata Viewer	Finished
2.	Questionnaire Test Tool	In progress
3.	CMA	In progress
4.	Unlock Records	Finished
5.	Field Editor	In progress
6.	Lookup Textbox Headers	Finished
7.	Runtime Parameter GotoField	Finished
8.	Undo All Edits Action	Finished
9.	Dark Theme	Finished
10.	Rich Text Mouse Events	Finished
11.	New Text Roles	Finished
12.	Excel Databases	Finished
13.	Constant Arrays	Finished
14.	New Field Methods	Finished
15.	Manipula Extensions	Finished



Blaise 5.9 New Features

#	Feature	Status
1.	Cloud version	In progress
2.	Accessibility	In progress
3.	Speed Improvements	In progress
4.	Datamodel properties	Not started
5.	Notifications for apps	Not started
6.	Multi-mode case management system	In progress
7.	Skiplink templates	Not started
8.	DateTime datatype	Not started
9.	Foreach action	Not started
10.	New data entry controls	Not started
11.	Step debugger for datamodels	Not started
12.	Aggregate Definitions (Quota)	In progress
13.	Server Manager Command Line	Finished



Features for 5.9 - Details

- #1. Cloud
 - Implement a Cloud version of the runtime system of Blaise. This makes it possible to run surveys in the cloud, and benefit from the scaling capabilities of the cloud.
- #2. Accessibility
 - Implement suggestions made by the Accessibility work group led by Mark Pierzchala
- #3. Speed Improvements
 - Try to improve the speed of large data entry pages, especially pages that have large tables on them
 - Further improve the speed of Manipula setups (started)
- #4. Datamodel properties
 - Add InitialDate for date controls, InitialTime / Time Interval for time controls
- #5. Notifications for apps
 - Implement the ability to send notifications to our apps
- #6. Multi-mode case management system
 - Ship Mark Pierzchala's case management system (Choréo) with Blaise



Features for 5.9 - Details

- #7. Skiplink templates
 - Allows you to customize the skiplink templates used for accessibility
- #8. DateTime datatype
 - Store both date and time in one field
- #9. Foreach action
 - Allows you to loop over the fields on a page, and execute actions on those fields
- #10. New data entry controls
 - Add Accordeon, Carousel and reversed number slider
- #11. Step debugger for datamodels
 - Debug the rules of a datamodel
- #12. Aggregate Definitions (Quota)
 - Was not finished in 5.8, moved to 5.9
- #13. Server Manager Command Line
 - All functionality of the Server Manager can be accessed by Command Line options (Setting up a server, creating a server park, installing/uninstalling surveys, managing users / skills / roles, etc.)





Blaise



Gaining deeper understanding

Blaise in the Cloud



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Blaise in the Cloud

- Ability to add a Cloud server to a server park
 - Server Manager extension
- Ability to use that cloud server at runtime

- At the moment, we focus on Microsoft Azure
- Still under development



Blaise in the Cloud – Service Principal

- Application registered in Azure Active Directory
 - Azure generates three ‘login’ elements
 - Application (client) ID: The ID of the application
 - Client Secret: The ‘password’ for the application
 - Tenant ID: The ID of the Active Directory entry
 - Instead of using your Azure credentials, you use the three IDs provided by Azure



Adding a Cloud server

The screenshot displays the Blaise Server Manager application window. The title bar reads "DESKTOP-26UTJ3L (Root) - Blaise Server Manager". The interface includes a menu bar with "File", "Home", and "Edit" options. Below the menu is a ribbon with buttons for "Edit", "Remove", "Add Cloud Server", "Delete Cloud Server", "Scale Up", and "Scale Down".

The main content area is divided into two panes. The left pane shows a tree view under "Server Management" with sub-items: "LocalDevelopment", "Production" (expanded), "Servers" (selected), "Surveys", "Settings", "Role Management (5)", "User Management (7)", and "Skill Management (1)".

The right pane, titled "Server Park Servers", contains a table with the following data:

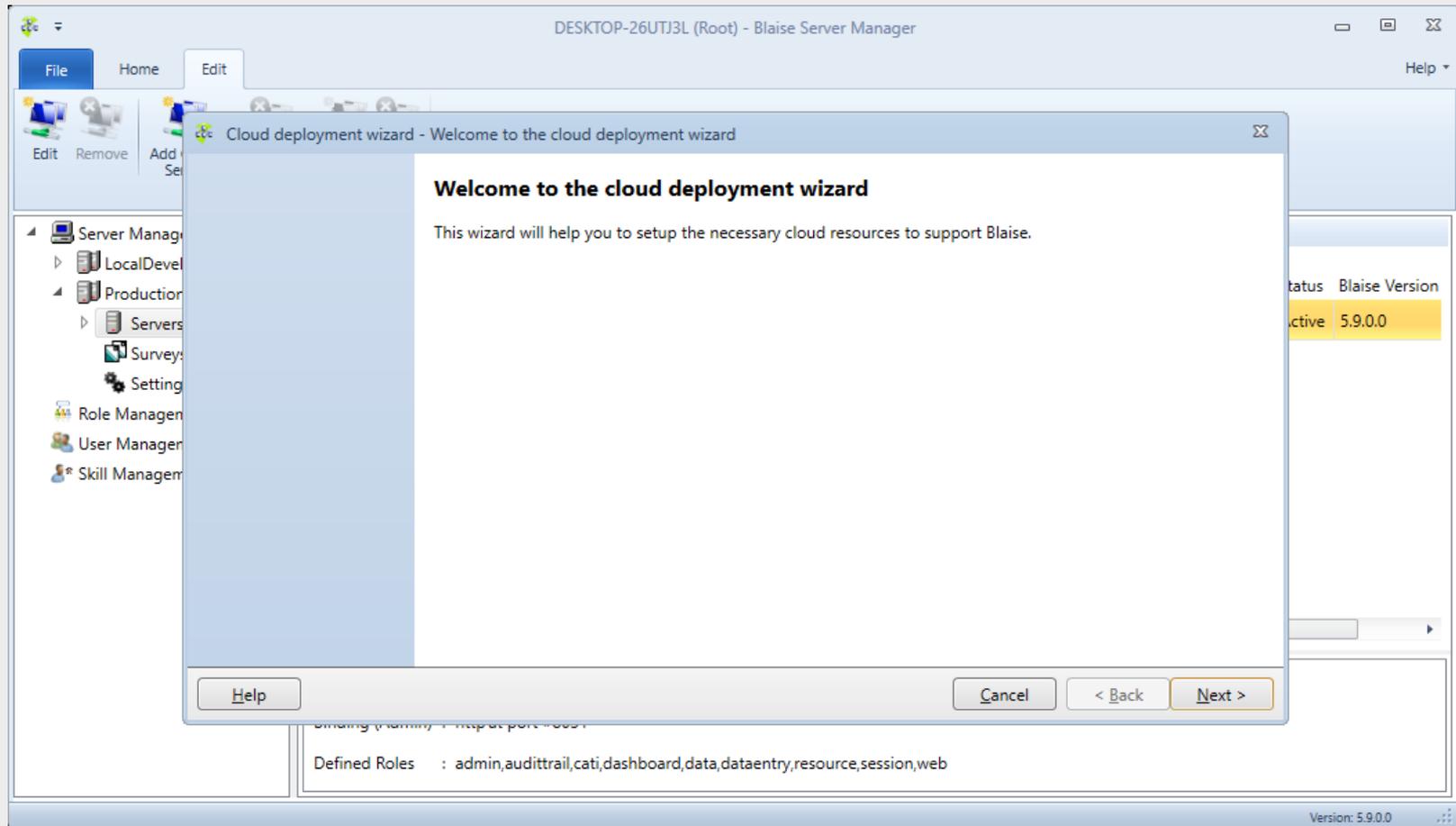
Internal Name	Public Name	Public Binding	Public Port	Audit Trail	Cati	Data	Data Entry	Resource	Session	Web	Status	Blaise Version
DESKTOP-26UTJ3L		http	8033	<input checked="" type="checkbox"/>	Active	5.9.0.0						

Below the table, a scrollable area shows the following details for the selected server:

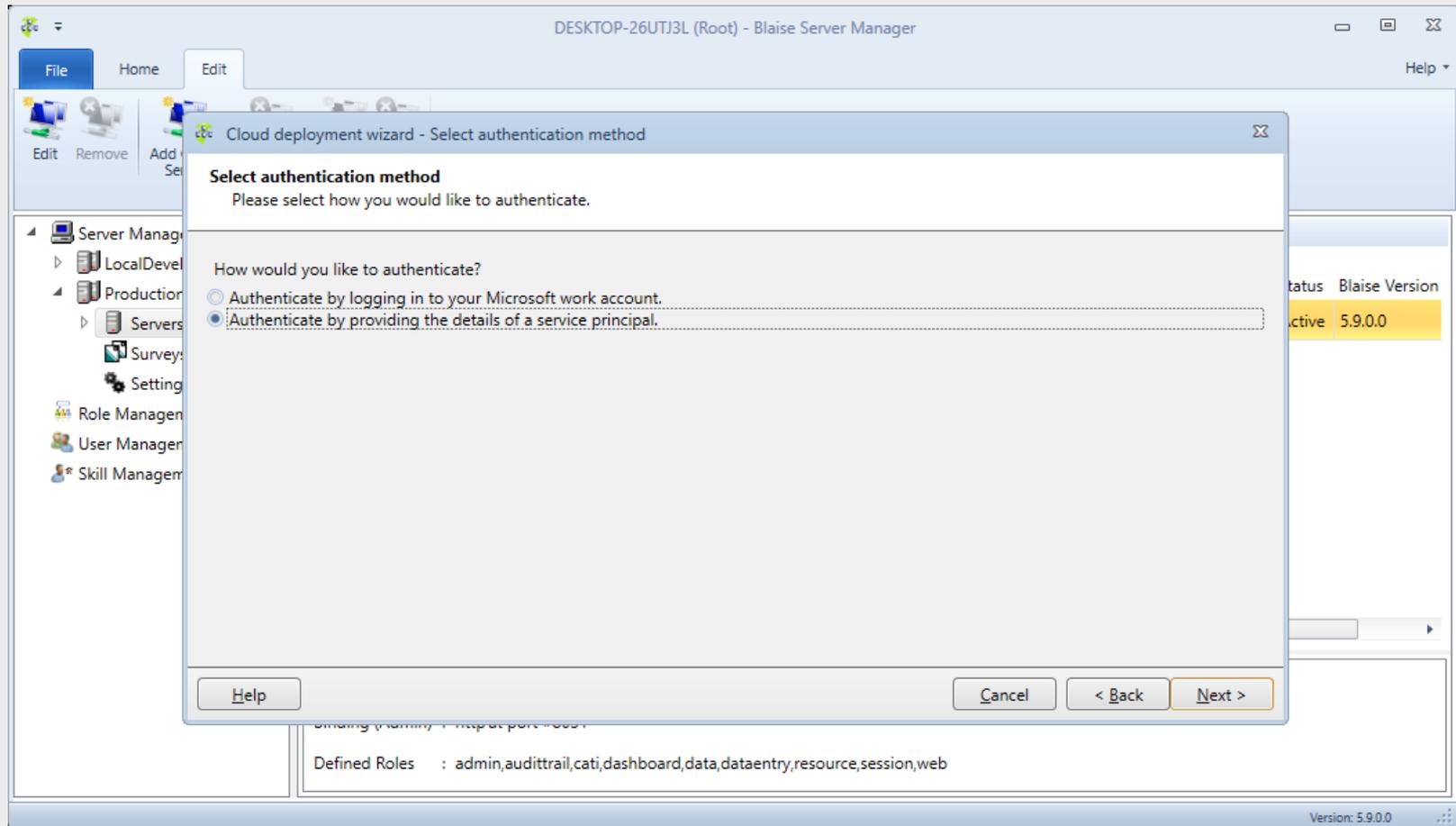
- Path : C:\Blaise\Bin\Surveys
- Binding (Admin) : http at port #8031
- Defined Roles : admin,audittrail,cati,dashboard,data,dataentry,resource,session,web

The bottom right corner of the application window displays "Version: 5.9.0.0".

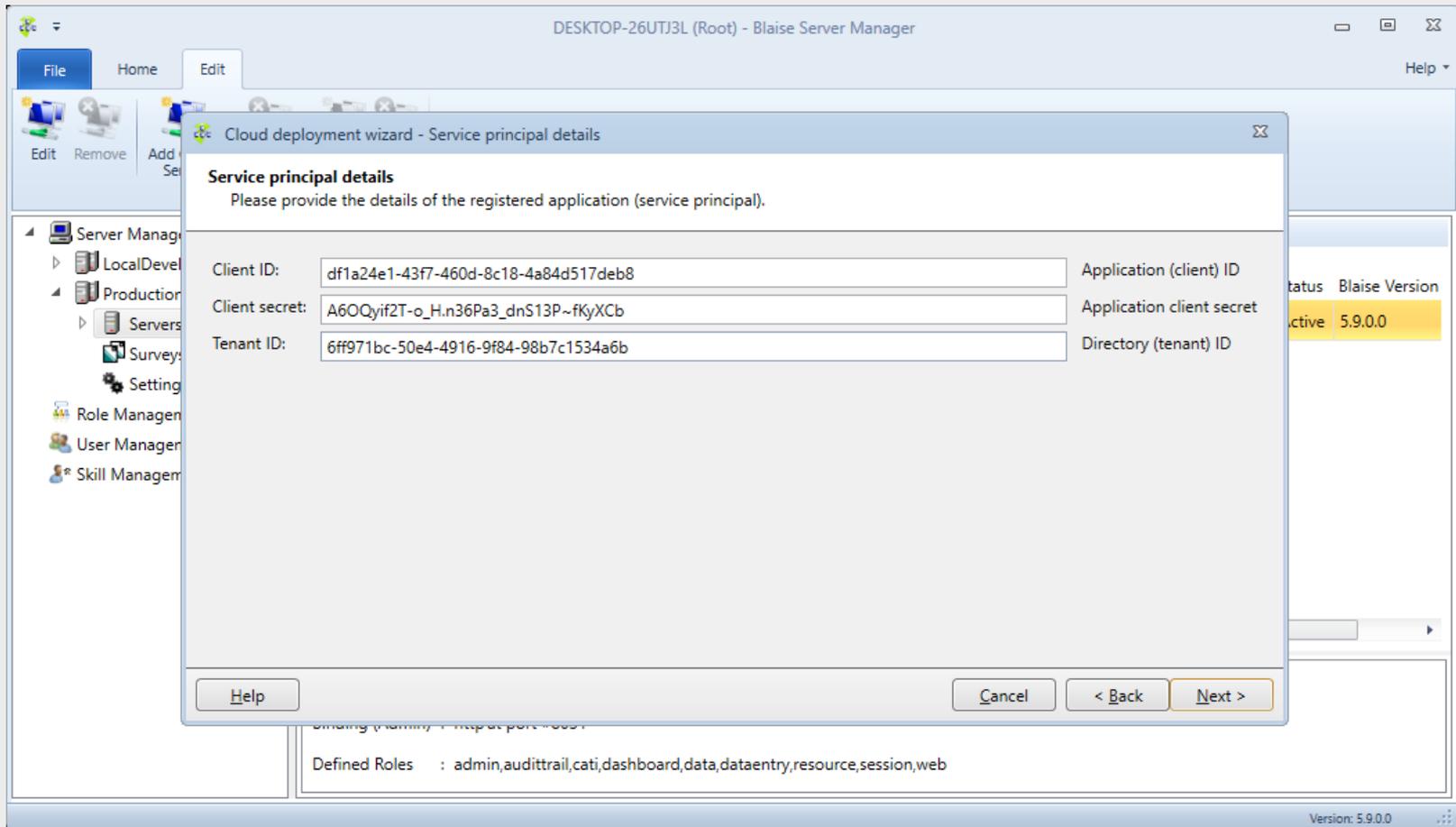
Adding a Cloud server



Adding a Cloud server



Adding a Cloud server



Adding a Cloud server

DESKTOP-26UTJ3L (Root) - Blaise Server Manager

File Home Edit Help

Cloud deployment wizard - Azure details

Azure details
Please provide the required Azure details. The information will be used to create the new resources.

Subscription: Visual Studio Enterprise Subscription Azure Subscription

Resource group: Select an existing resource group

Resource group: rg-blaise-5 Or type a new resource group name

Location: West Europe Select a location for the new resources

Hosting Plan: Consumption (for testing purposes) Premium (for production)

Help Cancel < Back Next >

Defined Roles : admin,audittrail,cati,dashboard,data,dataentry,resource,session,web

Version: 5.9.0.0

Adding a Cloud server

The screenshot shows the Blaise Server Manager interface. A 'Cloud deployment wizard - Summary' dialog box is open, displaying the following text:

Summary
The wizard is now ready to perform the deployment.

11:23:32 AM > You are about to deploy the required resources to Azure. Click 'Deploy' to continue.

At the bottom of the dialog, there are three buttons: 'Help', 'Cancel', and 'Deploy'.

The background interface shows a navigation pane on the left with the following items:

- Server Management
 - Local Development
 - Production
 - Servers
 - Survey
 - Settings
 - Role Management
 - User Management
 - Skill Management

On the right side, a table displays server status and version information:

Status	Blaise Version
Active	5.9.0.0

At the bottom of the main window, the 'Defined Roles' are listed as: admin, audittrail, cati, dashboard, data, dataentry, resource, session, web.

The version number 'Version: 5.9.0.0' is visible in the bottom right corner of the application window.

Adding a Cloud server

The screenshot shows the Blaise Server Manager interface. A 'Cloud deployment wizard - Summary' dialog box is open, displaying the following text:

Summary
The wizard is now ready to perform the deployment.

11:24:15 AM > Please wait while resources are being deployed. This might take several minutes...

11:24:15 AM > Creating new resource group rg-blaise-5

11:24:15 AM > Deploying storage account..

11:24:46 AM > Completed.

11:24:46 AM > Deploying service bus namespace, topics and queues..

11:25:46 AM > Completed.

11:25:46 AM > Deploying function apps..

Buttons: Help, Cancel, < Back, Deploy

Defined Roles : admin,audittrail,cati,dashboard,data,dataentry,resource,session,web

Version: 5.9.0.0

The background interface shows a navigation pane with 'Server Management' expanded, including 'Local Development', 'Production', 'Servers', 'Survey', 'Settings', 'Role Management', 'User Management', and 'Skill Management'. A table on the right shows 'Blaise Version' as '5.9.0.0' with a status of 'Active'.

Adding a Cloud server

Cloud deployment wizard - Summary

Summary
The wizard is now ready to perform the deployment.

11:26:47 AM > Completed.
11:26:47 AM > Assigning roles to function apps..
11:27:16 AM > Cloud resource deployment succeeded.
11:27:16 AM > Publishing data entry function app...
11:28:20 AM > Publish succeeded.
11:28:20 AM > Publishing resource function app...
11:29:15 AM > Publish succeeded.
11:29:15 AM > Publishing deploy function app...
11:30:07 AM > Publish succeeded.
11:30:07 AM > Publishing classification function app...
11:30:57 AM > Publish succeeded.
11:30:57 AM > Fetching connection details...
11:31:00 AM > Storage account name: st7t732qsh7wcv
11:31:00 AM > Storage account connection string: DefaultEndpointsProtocol=https;AccountName=st7t732qsh7wcv;AccountKey=xucQy87...
11:31:00 AM > Service bus namespace: sb-7t732qsh7wcv
11:31:00 AM > Service bus connection string: Endpoint=sb://sb-7t732qsh7wcv.servicebus.windows.net;SharedAccessKeyName=RootMan...

Storage account connection string:
DefaultEndpointsProtocol=https;AccountName=st7t732qsh7wcv;AccountKey=xucQy87KoofAzX/sKDwscFdHyBPao/SAT2Pt4xmhfWT+s0AO09P

Service bus connection string:
Endpoint=sb://sb-7t732qsh7wcv.servicebus.windows.net;SharedAccessKeyName=RootManageSharedAccessKey;SharedAccessKey=A18Q7eE

Help Cancel < Back Close

Version: 5.9.0.0



Adding a Cloud server

The screenshot displays the Blaise Server Manager application window. The title bar reads "DESKTOP-26UTJ3L (Root) - Blaise Server Manager". The interface includes a menu bar with "File", "Home", and "Edit" options, and a toolbar with icons for "Edit", "Remove", "Add Cloud Server", "Delete Cloud Server", "Scale Up", and "Scale Down".

The left sidebar shows a tree view under "Server Management":

- LocalDevelopment
- Production
 - Servers (highlighted)
 - Surveys
 - Settings
- Role Management (5)
- User Management (7)
- Skill Management (1)

The main area is titled "Server Park Servers" and contains a "Cloud Server" configuration box with the following details:

- ResourceGroup : rg-blaise-5
- Storage Account Name : st7t732qsh7wcvm
- TenantId : 6ff971bc-50e4-4916-9f84-98b7c1534a6b
- DeployFunctionApp : func-deploy-7t732qsh7wcvm

Below this is a table of server configurations:

Internal Name	Public Name	Public Binding	Public Port	Audit Trail	Cati	Data	Data Entry	Resource	Session	Web	Status	Blaise Version
DESKTOP-26UTJ3L		http	8033	<input checked="" type="checkbox"/>	Active	5.9.0.0						

At the bottom of the configuration area, the following details are shown:

- Path : C:\Blaise\Bin\Surveys
- Binding (Admin) : http at port #8031
- Defined Roles : admin,audittrail,cati,dashboard,data,dataentry,resource,session,web

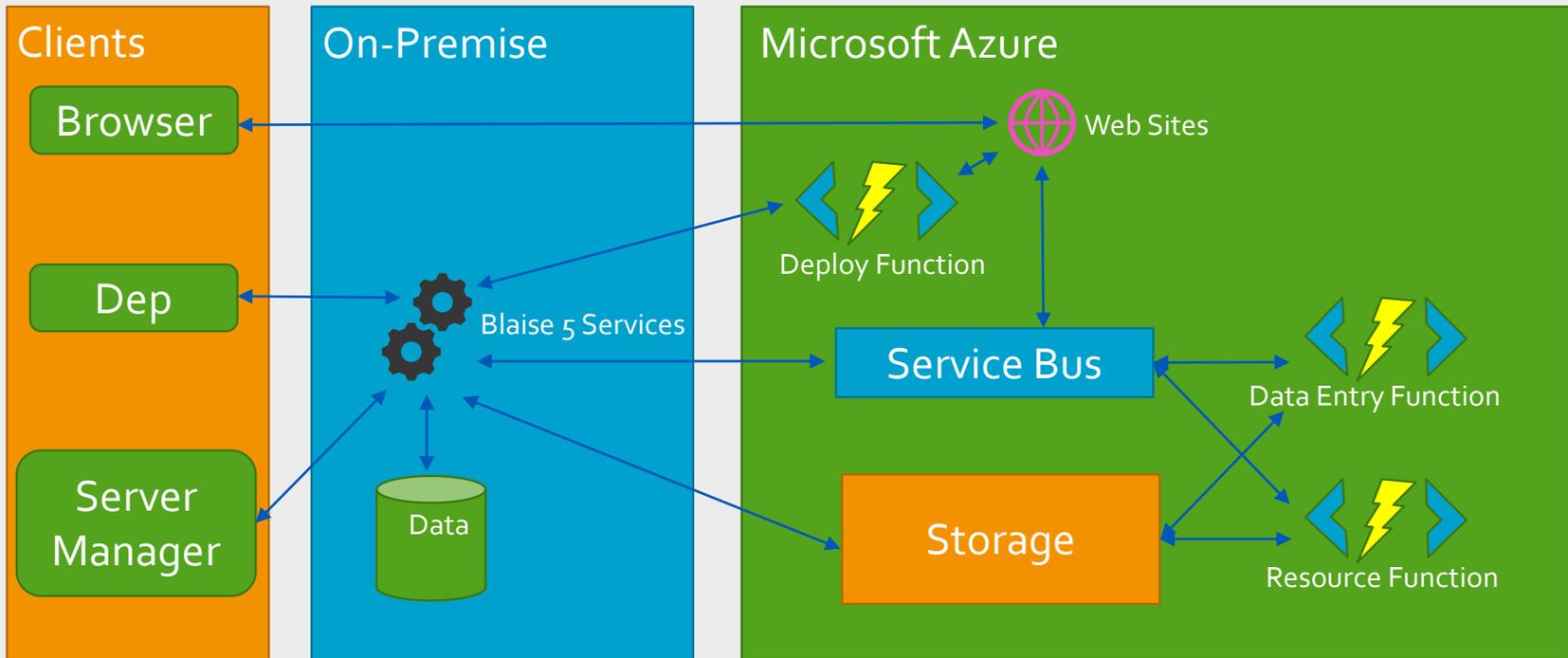
The version number "Version: 5.9.0.0" is visible in the bottom right corner of the application window.

Blaise in the Cloud - Architecture

- At the moment, we only host three roles in the cloud
 - DataEntry
 - Resource
 - Web
- The other roles are handled by an on-premise server
- These are the most important roles, because they are scalable
- We are working on hosting the other roles as well



Cloud Architecture



Azure Portal

- You can view/edit everything by using the Azure Portal
- Web site provided by Microsoft
- You need to have an account



Installing a survey

- Works the same as before
 - Choose package & install
- Survey must have a ‘cloud’ web runtime to work in the cloud
 - .NET Core version of the Web API



Demo

- Demo: running a survey in the cloud



Cloud Architecture - Scaling

- Functions can be scaled
- Two types of scaling:
 - Scale up: Better hardware
 - Scale out: More hardware
- Scale up can be achieved by changing the App Service Plan (within the portal)
- Scale out can be achieved automatically based on triggers. Unfortunately, we cannot use that feature 😞



Why can't we use automatic scaling?

- Functions are supposed to be stateless
 - It shouldn't matter which function handles a request
- For every request, the data entry function needs the state of the respondent's session
 - All variables
 - Session variables (current language, current question, ...)
- The session state can be stored in a central cache (redis cache for instance), from which it can be retrieved every time
- Unfortunately, this takes several seconds (sometimes up to 8 seconds) to load, for every request!
- Therefore, our functions aren't stateless



Why can't we use automatic scaling?

- The session data of respondents is cached in the data entry function
 - No need to load the session data.
- This means that a respondent must use the same data entry function for every request
- To guarantee this, each data entry function is a little bit different (the communication with the service bus uses a unique id for each data entry function)
- If the functions were scaled out automatically, they would all use the same id, and our caching mechanism wouldn't work



Cloud Architecture - Scaling

- The Server Manager has two buttons: Scale up and Scale down
- These buttons implement the Azure ‘scale out’ feature
 - Functions are scaled out, but each with their own unique ID
 - Functions are removed when all sessions that are handled by that function are finished. The functions that are going to be removed won’t accept new sessions



Cloud Architecture - Scaling

- There must be at least one data entry and resource function
- Using the premium plan ensures that the functions aren't removed when idle
- In this premium plan, functions can also be 'warm started', meaning that there is no load time when the first request arrives



Scaling up

The screenshot displays the Blaise Server Manager application window. The main window title is "DESKTOP-26UTJ3L (Root) - Blaise Server Manager". A dialog box titled "ScaleUp Cloud Data Entry Function" is open, with the subtitle "Scale up data entry function for the selected cloud server".

The dialog box contains the following information:

- Cloud Server:**
 - ResourceGroup : rg-blaise-5
 - Storage Account Name : st7t732qsh7wcvn
 - TenantId : 6ff971bc-50e4-4916-9f84-98b7c1534a6b
 - DeployFunctionApp : func-deploy-7t732qsh7wcvn
- Authentication:**
 - Authenticate by logging in to your Microsoft work account.
 - Authenticate by providing the details of a service principal.
- Service Principal Details:**
 - Client ID: df1a24e1-43f7-460d-8c18-4a84d517deb8 (Application (client) ID)
 - Client secret: A6OQyif2T-o_H.n36Pa3_dnS13P~fkYXCb (Application client secret)
 - Tenant ID: 6ff971bc-50e4-4916-9f84-98b7c1534a6b (Directory (tenant) ID)
- Buttons:** Cloud Login, Start, Close
- Instance Counts:**
 - Current count: 1 (Current number of Data Entry Function instances)
 - Additional Count: 1 (Additional number of Data Entry Function instances)
- Log:** 11:37:30 AM > Authentication succeeded.

The background window shows a sidebar with navigation options: File, Home, Edit, Remove, Add Cloud Server, Server Management, Local Development, Production, Servers, Surveys, Settings, Role Management, User Management, and Skill Management. The status bar at the bottom right indicates "Version: 5.9.0.0".

Scaling down

DESKTOP-26UTJ3L (Root) - Blaise Server Manager

ScaleDown Cloud Data Entry Function

Scale down data entry function for the selected cloud server

Cloud Server

ResourceGroup : rg-blaise-5
Storage Account Name : st7t732qsh7wcv
TenantId : 6ff971bc-50e4-4916-9f84-98b7c1534a6b
DeployFunctionApp : func-deploy-7t732qsh7wcv

Authenticate by logging in to your Microsoft work account.
 Authenticate by providing the details of a service principal.

Client ID: df1a24e1-43f7-460d-8c18-4a84d517deb8 Application (client) ID
Client secret: A6OQyif2T-o_H.n36Pa3_dnS13P~fkYXCb Application client secret
Tenant ID: 6ff971bc-50e4-4916-9f84-98b7c1534a6b Directory (tenant) ID

Cloud Login

Current count: 1 Current number of Data Entry Function instances
Remove Count: 1 Number of Data Entry Function instances to remove

Start Close

11:41:24 AM > Authentication succeeded.

Version: 5.9.0.0

Removing a cloud server

The screenshot shows the 'Blaise Server Manager' application window. A dialog box titled 'Removal Cloud Functions and Resources for the selected cloud server' is open. The dialog contains the following information:

Removal of cloud functions and resources for the selected cloud server

Cloud Server

ResourceGroup : rg-blaise-5
Storage Account Name : st7t732qsh7wcv
TenantId : 6ff971bc-50e4-4916-9f84-98b7c1534a6b
DeployFunctionApp : func-deploy-7t732qsh7wcv

Authenticate by logging in to your Microsoft work account.
 Authenticate by providing the details of a service principal.

Client ID: df1a24e1-43f7-460d-8c18-4a84d517deb8 Application (client) ID
Client secret: A6OQyif2T-o_H.n36Pa3_dnS13P~fkYXCb Application client secret
Tenant ID: 6ff971bc-50e4-4916-9f84-98b7c1534a6b Directory (tenant) ID

Cloud Login

Start Close

11:43:37 AM > Authentication succeeded.
11:44:17 AM > Removal started ...

Version: 5.9.0.0

Removing a cloud server

The screenshot displays the Blaise Server Manager application window titled "DESKTOP-26UTJ3L (Root) - Blaise Server Manager". A dialog box titled "Removal Cloud Functions and Resources" is open, showing the "Removal of cloud functions and resources for the selected cloud server" process. The dialog contains the following information:

Cloud Server

- ResourceGroup : rg-blaise-5
- Storage Account Name : st7t732qsh7wcv
- TenantId : 6ff971bc-50e4-4916-9f84-98b7c1534a6b
- DeployFunctionApp : func-deploy-7t732qsh7wcv

Authentication options:

- Authenticate by logging in to your Microsoft work account.
- Authenticate by providing the details of a service principal.

Service Principal Details:

- Client ID: df1a24e1-43f7-460d-8c18-4a84d517deb8 (Application (client) ID)
- Client secret: A6OQyif2T-o_H.n36Pa3_dnS13P~fkYXCb (Application client secret)
- Tenant ID: 6ff971bc-50e4-4916-9f84-98b7c1534a6b (Directory (tenant) ID)

Buttons: Cloud Login, Start, Close

Log Output:

```
11:43:37 AM > Authentication succeeded.  
11:44:17 AM > Removal started ...  
11:47:03 AM > Resource group rg-blaise-5 deleted  
11:47:03 AM > Resources removed  
11:47:03 AM > Removal of cloud server succeeded
```

The background interface shows a sidebar with navigation options: File, Home, Edit, Remove, Add Cloud Server, Server Management (Local Development, Production, Servers, Surveys, Settings), Role Management, User Management, and Skill Management. The bottom right corner of the application window indicates "Version: 5.9.0.0".

Cloud Architecture – Other providers

- All the elements of Azure that we use are also present in other cloud providers
- The code that we use to communicate with the Azure elements has to be changed to use other providers



Cloud Architecture – Other providers

Service	Microsoft Azure	AWS (Amazon Webservices)	Google Cloud Platform (GCP)
Serverless function	Azure functions	Amazon Lambda	Google Cloud Functions
Service bus	Azure servicebus	Amazon MQ	Google Pub/Sub
Storage	Storage account (Azure blob storage)	Simple Storage Service (S3)	Cloud Storage
Web Application host	Azure App Service	AWS Elastic Beanstalk	Google App Engine





Blaise



Gaining deeper understanding

Paradata Viewer



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Paradata Viewer

- New tool
- View audit trail events
- View Cari screenshots
- Play Cari recordings



Paradata Viewer

The screenshot displays the Paradata Viewer application interface. At the top, there is a menu bar with 'File', 'Options', and 'Refresh'. Below the menu bar, the main window is divided into several sections:

- Instrument:** A dropdown menu showing 'Paradata'.
- ID:** A text field containing 'e3e3bd17-a2eb-4062-9700-1339c67ac4b0'.
- Park:** A text field containing 'LocalDevelopment'.
- Selection:** A section with 'Periode of time' (From: 7/1/2020, To: [empty]), an 'Or' separator, and a 'Primary Key Value' field with a 'Select Key' button and an 'Auto Apply' checkbox.
- Event List:** A central list of events with columns for date/time and event details. The selected event is '7/7/2020 3:07:21 PM UpdatePage <UpdatePageEvent LayoutSet'. Above the list are checkboxes for 'Session', 'Page', 'Field', 'Keyboard', 'Category', 'Actions', and 'Other'.
- Screen Shots:** A vertical list of thumbnails for various fields: Person.IDNumber, Person.FirstName, Person.LastName, Person.PhoneNumber, Person.Age, Person.Town, and Flight.Carrier. Each thumbnail shows a preview of the data and includes 'Timestamp' and 'Encoding' information.
- Recordings:** A vertical list of playback controls for the same fields as the Screen Shots. Each control includes a 'Play =>' button and 'Start' and 'End' time indicators.





Blaise



Gaining deeper understanding

Questionnaire Test Tool



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Questionnaire Test Tool

- Generate Test records
 - Generate a record set with which all ASK questions are visited at least once
- Generate Universe for fields
 - List the conditions under which a field is asked
- Generate Histogram
 - List the number of route paths of a certain length



Generate Test Records

```
5  FIELDS
6
7  ID : INTEGER[4]
8
9  A, B, C, D, E, F: INTEGER[1]
10
11 RULES
12   A
13   IF A > 4 THEN
14     B
15     IF B > 4 THEN
16       C
17     ELSE
18       D
19     ENDIF
20   ELSE
21     E
22     IF E > 4 THEN
23       F
24     ENDIF
25   ENDIF
```

1	A;B;E
2	8;8;
3	3;;8
4	8;3;
5	



Blaise



Gaining deeper understanding

Unlock Records



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Unlock Records

- Offers the possibility to unlock locked records
- This can happen when record locking is turned on, and a respondent closes his browser by accident
- API extension, so this is not part of the basic system
 - Syntax (C#): `dataLink.Unlock(key, "");`





Blaise



Gaining deeper understanding

Field Editor



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Field Editor

- Functionality to edit a field or create new ones
- Especially meant to edit the texts of a field
- Handles multi-mode and multi-language fields
- Shows a preview of the texts



Field Editor

Edit Field

Field Name:

Field Type:

Use the same texts in all modes Use the same texts in all languages

Text is undefined

Tag

- CAWI
 - Question
 - ENG
 - NED
 - Description
 - ENG
 - NED
 - Help
 - ENG
 - NED
 - InterviewerInstruc
 - ENG
 - NED
- CATI
 - Question
 - ENG
 - NED
 - Description
 - ENG
 - NED
 - Help
 - ENG
 - NED

Verdana 16 B I U                        

`<bold> What is your name? </bold>`

What is your name?

OK Cancel



Blaise



Gaining deeper understanding

Lookup Textbox Headers



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Lookup Textbox Headers

- Use text roles to display headers of a lookup textbox
- Multi-lingual
- You must use the Data Source feature
 - This also gives you a field filter
 - Lookup statements in the rules are ignored!



Lookup Textbox Headers

Lookup Textbox

Lookup Textbox

eng

Normal lookup

Alpha search with a data source

State name	Abbrev
Alabama	AL
Alaska	AK
Arizona	AZ
Arkansas	AR
California	CA
Colorado	CO
Connecticut	CT
Delaware	DE
District of Columbia	DC
Florida	FL
Georgia	GA
Hawaii	HI
Idaho	ID
Illinois	IL
Indiana	IN

State name with a data source

Abbreviation with a data source

▶



Blaise



Gaining deeper understanding

Runtime Parameter GotoField



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Runtime Parameter GotoField

- Jump to a specific field in the datamodel
- Field has to be reachable





Blaise



Gaining deeper understanding

Undo All Edits action



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Undo All Edits action

- Was present in Blaise 4 but not yet in Blaise 5
- Restores the record to the state when the session was started



Blaise



Gaining deeper understanding

Dark Theme



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Dark Theme

- Sets the color scheme of Blaise and other tools to dark
- Saves power



Dark Theme

Dark Solution - Blaise Control Centre

Configuration: Development

File Home Source

Cut Copy Paste Search in Document Search Up Match Case Match Whole Word Skip Comments Select All Undo Redo Indent Outdent Comment Uncomment Expand Source Structure Continue Step Over Step In Alien procedure Alien procedure2 Block Classification Datamodel External declaration External in rules Field Flight Survey For loop If statement Library Special Answer Set

Clipboard Search Editing Miscellaneous Debugging Snippets

Start Page Dark.blax x

```
3 Date Created: $user$
4 Author: $user$
5 }
6
7 DATAMODEL FlightSurvey "Flight Survey"
8
9 PRIMARY
10     Person.IDNumber
11
12 ROLES = Help "The Help role provides a help button that the user can click to display question help text.",
13         Watermark "The Watermark role provides a hint to the user as to what input elements are used for.",
14         ToolTip "The ToolTip role provides a popup hint when the user hovers over a control.",
15         Template "Apply layout templates automatically",
16         EditMask "An EditMask allows you to specify an input mask for automatic input formatting and validation."
17
18 FIELDPROPERTIES
19     Remark : OPEN
20
21 TYPE
22     TMyEnum = (Yes "Yes, please", No "No, not necessarily"), DONTKNOW
23
24 BLOCK BPerson
25     FIELDS
26         IDNumber "What is your national identification number?"
27         Help "The national identification number is used by the government as a means of tracking their citizens,
```

Source Structure Find and Replace Find in Layout

Source Meta Settings Layout

Output

```
10:13:31 - Connecting to server
10:13:31 - Installing main package C:\BCLUB Demo 07-07-2020\08_RichTextMouseEvents\RichTextMouseEvents.bpkg
10:13:37 - Main package C:\BCLUB Demo 07-07-2020\08_RichTextMouseEvents\RichTextMouseEvents.bpkg installed
10:13:37 - Deployment successfully completed
-----
10:13:37 - Starting preview
10:13:37 - Starting Data Entry Program with parameters 1343e678-3c1f-4990-af1b-024248537165 -Agent -ServerParkLocalDevelopment -Host http://localhost:8033
10:13:37 - Data Entry Program started
```

Solution Explorer

Dark Solution*

Dark

Dark.blax*

Dark bird

Solution Explorer Properties

Messages (0) Output References List Find List

Line 3 Col 24 Ins

Services: Version: 5.8.2.2470 (Developer)





Blaise



Gaining deeper understanding

Rich Text Mouse Events



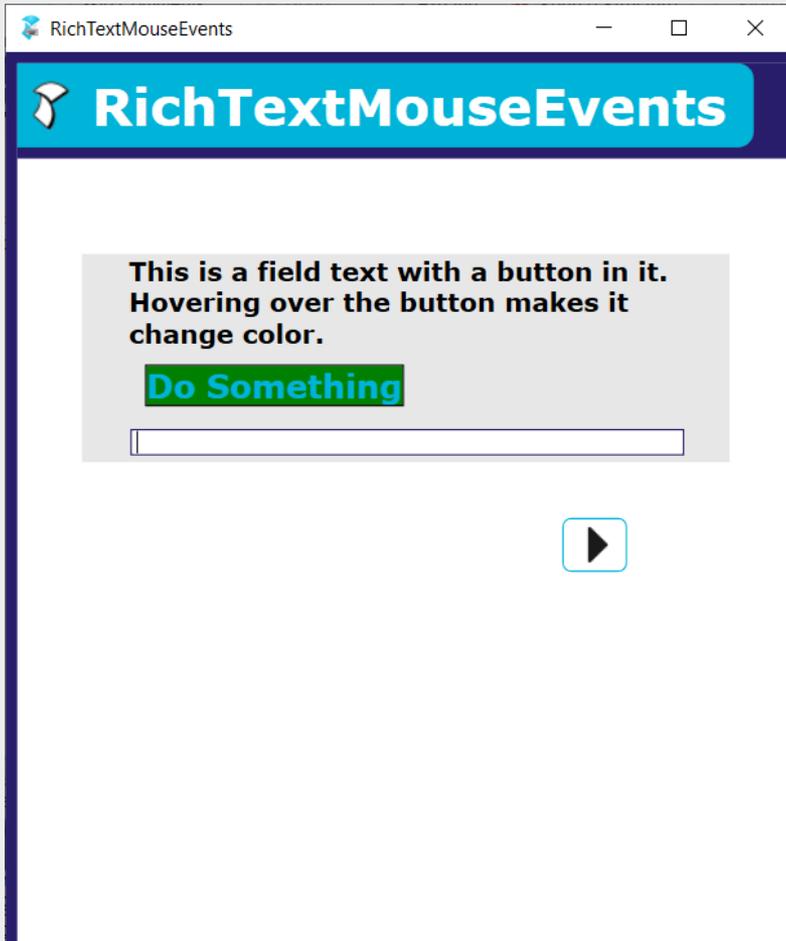
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Rich Text Mouse Events

- Rich text elements can now have mouse events
- Allows you to modify elements when the respondent hovers over or clicks on them



Rich Text Mouse Events



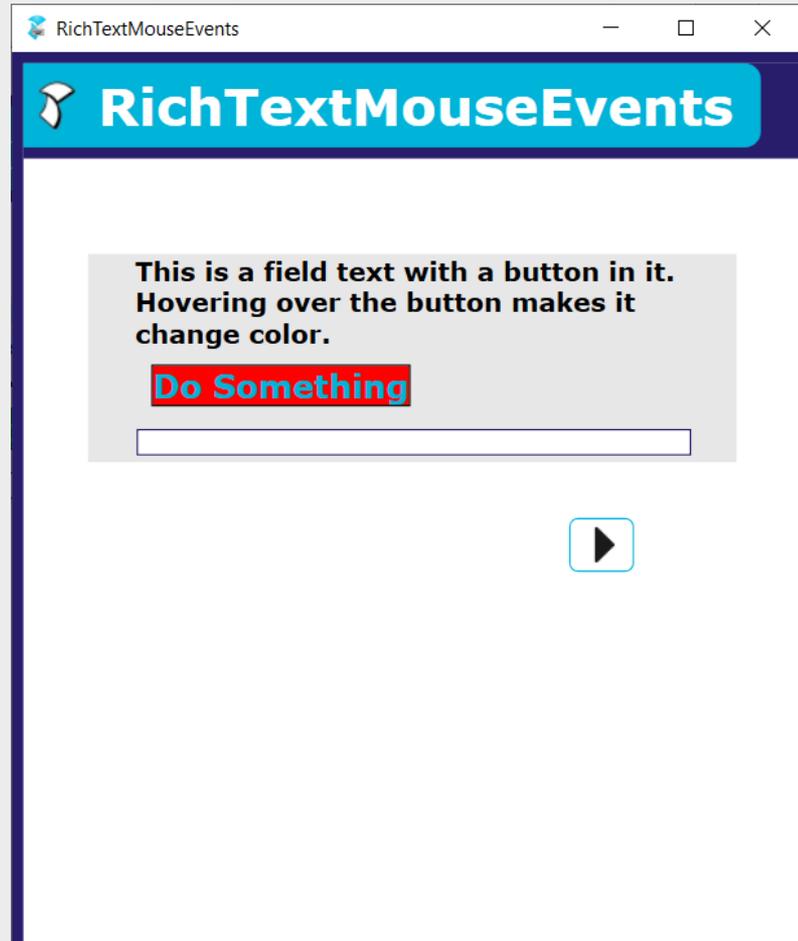
RichTextMouseEvents

RichTextMouseEvents

This is a field text with a button in it.
Hovering over the button makes it change color.

Do Something

▶



RichTextMouseEvents

RichTextMouseEvents

This is a field text with a button in it.
Hovering over the button makes it change color.

Do Something

▶



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New Text Roles



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New Text Roles

- New standard text roles have been added to the default resource database:
 - Emphasized
 - Excluded
 - Included
 - Instructional
 - Optional





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Excel databases



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Excel Databases

- Access to Microsoft Excel
 - Read data that is stored in Excel worksheets
 - Write data to Excel
 - Data access via BDIX
- Requires installation of Microsoft Access Database Engine OLEDB provider (Microsoft.ACE.OLEDB)
 - Shipped as part of the Microsoft Access Database Engine 2016 Redistributable
- Single user only!





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Language Extensions



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Language Extensions

- Constant arrays (multilingual)
- Field Methods / Properties
 - CategoryCount
 - GetRoleText
 - IsRandomized
 - RandomizedCount
 - GetRandomizedIndex
 - GetCategoryRoleText
 - GetCategoryRoleTextByIndex





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Gaining deeper understanding

Manipula



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Manipula – Speed improvements

- We have been working on speed improvements. Achieved a lot already, but still needs more work → 5.9
 - We have a set of setups specifically for a regression performance test
 - We measure against Blaise 4.8.6
 - For every new Blaise 5 build we run the regression performance test and update a spreadsheet with the results



Manipula - Extensions

- Not too many, but still some important ones for those who need / asked for them
 - Some are App related



Manipula – Epilogue section

- Manipula always had a Prologue section
 - Executed once before first time execution of the first Manipulate section
- We now finally introduced the Epilogue section
 - Executed once after the last time execution of the first Manipulate section



Manipula – File Identifier assignment

- Allows you to copy all fields from a record to another record
- $F := G$ where F and G are file identifiers
- Restriction: Both files need to have same meta definition
- Can be used when `CONNECT=NO`
- Handy when you do not can / want to rely on automatic linking between fields with the same name



Manipula – Message in console

- Extra parameter for the MESSAGE instruction
MESSAGE(<text expression>[,TRUE])
- When this additional parameter is used AND Manipula is running in the console the message will show up in the console



Manipula – EVAL function

- Function that accepts expressions as a string and returns the result as a string.
- Can handle Boolean expressions, numerical expressions and string expressions
- Example `aStr:= EVAL('1<>1 ')` results in `aStr = 'False'`



Manipula – CopyFile and DeleteFile

- Two functions that work on a file on disk

Res:= COPYFILE(<**source**>,<**destination**>)

Res:= DELETEFILE(<**source**>)

- **Source** is a string expression, the name of the file to be copied. A complete path specification (either absolute or relative) must be provided if the file isn't expected to exist in the current working folder. **Destination** is a string expression, the name of the destination file. The result is an integer value.



Manipula - Miscellaneous

- Languages can be added through a translation text file (extension .BITT)
- SETLANGUAGE can now use a STRING expression
- Access to a category name and the category count of an enum field: `GETCATEGORYNAME / CATEGORYCOUNT`

