OPENNTF WEBINARS

April, 2022 OpenNTF Webinar
What's New in Domino Designer
AGENDA

• Welcome – Howard Greenberg and Graham Acres
• Presentation – Ulrich Krause, midpoints GmbH
• Q and A - All
THANKS TO THE OPENNTF SPONSORS

- HCL made a contribution to help our organization
  - Funds these webinars!
  - Contests like Hackathons
  - Running the organization
- Prominic donates all IT related services
  - Cloud Hosting for OpenNTF
  - Infrastructure management for HCL Domino and Atlassian Servers
  - System Administration for day-to-day operation
HCL NOTES UI CONTEST

• OpenNTF is co-sponsoring HCL Notes UI Contest with GroupWave
• The new application should work within Notes Client V12.0.1 and Nomad for mobile devices (both iOS and Android
• Entries will be judged on usability, compatibility, and technical design
• The jury consists of HCL Ambassadors and HCL employees
• Winners announced at Engage in May!
• More info at https://www.groupwave.be/contest/
THIS IS OUR COMMUNITY

• Join us and get involved!
• We are all volunteers
• No effort is too small
• If your idea is bigger than you can do on your own, we can connect you to a team to work on it
• Test or help or modify an existing project
• Write guides or documentation
• Add reviews on projects / stars on Snippets
OPENNTF BOARD UPDATES

• Community Projects
  • Catalog of User Group Presentations
  • Led by Oliver Busse
  • Channel on slack.openntf.com #presentation-project

• The Future of OpenNTF
  • How to Evolve OpenNTF
  • We want your input!
  • Blog and video posted soon
  • Feedback via Discord
UPCOMING EVENTS

• Engage 2022 – Bruges, Belgium – NOW May 23-25, 2022
  • https://engage.ug/
Next Webinar – One Touch Setup

- Watch [https://www.openntf.org/webinars](https://www.openntf.org/webinars) for more information
- June: OpenNTF Annual General Meeting
**ASKING QUESTIONS**

- First Question – Will this be recorded?
  - Yes, view on YouTube!!!
  - [https://www.youtube.com/user/OpenNTF](https://www.youtube.com/user/OpenNTF)
- Use the Questions Pane in GoToWebinar
- We will get to your questions at the end of the webinar
- The speakers will respond to your questions verbally
  - (not in the Questions pane)
- Please keep all questions related to the topics that our speakers are discussing!!!
- Unrelated Question => post at:
  - [http://openntf.slack.com/](http://openntf.slack.com/)
WHAT'S NEW IN DOMINO DESIGNER

Ulrich Krause
What is new in Domino Designer

Ulrich Krause, midpoints GmbH, openntf 04/2022
Lotus, IBM, HCL Notes und Domino since 1993

Developer / Administrator / Consultant

IBM Champion 2010 - 2019
HCL Ambassador 2019 - 2022

Let‘s Encrypt For Domino (LE4D)
https://www.midpoints.de/de-solutions-LE4D

Working with midpoints GmbH, Germany
Tools & Resources
... free of charge
panagenda Advanced Document Properties

Available for free download.
Compatible with Notes 9+.
Using NotesPeek

https://ds_infolib.hcltechsw.com/ldd/dominowiki.nsf/dx/Using_NotesPeek

Download

For complete information on all options and how to get started, open the application and select Help > > About This Application and Help > > Using This Application.

https://help.hcltechsw.com/dom_designer/beta/12.0.1/basic/wn_databasecompare.html
You can use “Database Comparison” to generate a design synopsis of a database that is exported to another database.

The target database contains documents describing each design element.
Domino Designer Documentation

- Domino
  - Domino Designer
    - Domino Designer 12.0.1
    - Domino Designer 11.0.1
    - Domino Designer 11.0.0
    - Domino Designer 10.0.1
    - Domino Designer 9.0.1
  - Domino AppDev Pack
  - Enterprise Integrator
  - Domino Connector for SAP Solutions 2.0.2
  - Additional Information

- HCL Domino Designer Basic User Guide and Reference
  This guide provides information on using HCL Domino Designer and programming language reference information.

- HCL Domino Designer XPages User Guide
  This guide focuses on the aspects of creating applications using XPages technology.

- JavaScript and XPages reference
  This reference describes the JavaScript™ language elements, Application Programming Interfaces (APIs), and other artifacts that you need to create scripts, plus the XPages simple actions.

- Notices

Java Faker is a port of Ruby's faker that generates fake data. It's useful when you're developing a new project and need some pretty data for showcase.

https://github.com/DiUS/java-faker
Aside from LS & Java
Aside from LotusScript & Java

C API SDK

11.0.1 (first update since v 9.x), but no makefiles
12.0.0 comes with makefiles
Aside from LotusScript & Java

C API SDK

11.0.1 (first update since v 9.x), but no makefiles
12.0.0 comes with makefiles

https://www.eknori.de/2021-02-07/capi-sdk-11-0-1-for-hcl-notes-domino-released/
https://www.eknori.de/2021-02-10/onemk-makefiles-made-easy/
Aside from LotusScript & Java

C API SDK

11.0.1 (first update since v 9.x), but no makefiles
12.0.0 comes with makefiles

https://www.eknori.de/2021-02-07/capi-sdk-11-0-1-for-hcl-notes-domino-released/
https://www.eknori.de/2021-02-10/onemk-makefiles-made-easy/
DOTS (Domino OSGI Tasklet Service)

Bring back DOTS support

DOTS was an important addition in the panorama of the scheduled processes for Domino. True, it was cumbersome to have to install the Social Component in order to have DOTS task but overall it was a "breath of decent fresh air". Considered the power...

https://help.hcltechsw.com/domino/12.0.0/admin/wn_dotsredux.html
https://www.openntf.org/main.nsf/project.xsp?r=project/OSGI%20Tasklet%20Service%20for%20IBM%20Lotus%20Domino/summary

Domino OSGI Tasklet Service (DOTS) is available again

DOTS is available again in Domino 12.

For more information, see article K80089518 on the HCL Software Support site.

https://help.hcltechsw.com/domino/12.0.0/admin/wn_dotsredux.html
Aside from LotusScript & Java

64 Bit Client
Notes Basic Client
Notes Standard Client
Domino Designer
Admin Client

Notes1201_x64_Beta

Files  Download Log  Notification Log

Download Selected Files

<table>
<thead>
<tr>
<th>File Description</th>
<th>File Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCL Notes 12.0.1 for Windows 64bit English - Beta</td>
<td>681.8MB</td>
</tr>
<tr>
<td>HCL Notes, Designer 12.0.1 for Windows 64bit English - Beta</td>
<td>0.95GB</td>
</tr>
</tbody>
</table>

C:\tools\SysinternalsSuite>sigcheck c:\notes\admin.exe

Sigcheck v2.03 - File version and signature viewer
Copyright (C) 2004-2014 Mark Russinovich
Sysinternals - www.sysinternals.com

c:\notes\admin.exe:
  Verified:  Signed
  Signing date: 01:15 PM 11/22/21
  Publisher:  HCL America Inc.
  Description:  HCL Notes/Domino
  Product:  HCL Notes/Domino
  Prod version:  12.0.100.21325
  File version:  12.0.100.21325
  MachineType:  64-bit
A look in the rearview mirror

... Domino V10.x / 11.x
What is new in Domino Designer 10

NotesHTTPRequest,

The new **LotusScript** class allows HTTP requests to web servers. For more information, see the section LotusScript Classes A - Z in the IBM Domino Designer Basic User Guide and Reference.

**Domino Query Language (DQL)**

Is a new facility that runs in Domino core that allows for a terse, shorthand syntax for finding documents according to a wide variety of complexity of terms.

It leverages existing design elements without the need to write detailed code to access them.

DQL can be executed in the **LotusScript** and **Java Query** method on the **(Notes) Database** object or via the **domino-db node.js API**.

For more information, see the Domino Query Language documentation, currently under https://help.hcltechsw.com/dom_designer/10.0.1/basic/dql_overview.html
What is new in Domino Designer 10

**NotesRichTextItem**,

New method `convertToHtml` to convert a RichTextItem to an HTML string

After this method is called, the `getHTMLReferences` method can be called.

The `HTMLReference` class was created to represent the data contained within an HTML reference
What is new in Domino Designer 10

“Unfortunately, the documentation for this was a mistake, as it was a method under development years ago. It is unsupported and will be removed going forward.”

- James Cooper/USA/PNP HCL -
Domino AppDev Pack

A server-side component called Proton. An administrator installs and configures Proton on one or more Domino servers.

A Node.js module called domino-db. A developer adds this module to a Node.js application. domino-db uses Proton to perform bulk operations on documents in a server database. domino-db uses the Domino Query Language (DQL) to select target documents for most operations.

A Node.js based service called IAM (Identity and Access Management). An administrator can deploy it aside Domino to enable remote applications to access Domino resources through RESTful APIs with standard OAuth2.0 authorization flows. It is a Preview feature.

For details, see the App Dev Pack documentation.

New or enhanced LotusScript and Java classes

The **NotesHTTPRequest** LotusScript class, introduced in release 10.0, supports additional methods and properties.

A new class, **DominoQuery**, is used to compile, tune, and run Domino Query Language queries. Available for **LotusScript** and **Java**.

The following new **LotusScript** classes support JSON: **NotesJSONArray**, **NotesJSONElement**, **NotesJSONNavigator**, and **NotesJSONObject**.
What is new in Domino Designer V 11.x

New properties to support Domino-based mobile clients such as HCL Nomad
New LotusScript classes NotesGPS and NotesGPSPosition
New methods and properties for NotesJsonNavigator, NotesJsonArray, NotesJsonObject classes
New methods for (Notes)DominoQuery classes
New properties for NotesViewColumn class

Domino Query Language enhancements.

https://help.hcltechsw.com/dom_designer/11.0.1/basic/wn_designer_11.0.html

https://help.hcltechsw.com/dom_designer/11.0.1/basic/wn_designer_11.0.1.html
Used to register users who have existing Person documents created by syncing Active Directory users into the Domino directory. (HCL DirSync)

https://help.hcltechsw.com/dom_designer/11.0.1/basic/H_CONTACTNOTEID_PROPERTY_NOTESREGISTRATION.html

Private Sub registerPerson(syncDoc As NotesDocument)
Dim newUserDoc As NotesDocument
If (Not syncDoc Is Nothing) Then
    If (syncDoc.HasItem(ITEM_OBJECT_GUID)) Then
        If Not syncDoc.hasItem(ITEM_CERTIFICATE) Then
            firstName = syncDoc.firstName(θ)
            lastName = syncDoc.lastName(θ)

            Call calcUserIdFileName
            Call calcMailFileName

            reg.Contactnoteid = syncDoc.Noteid

            Call reg.RegisterNewUser(lastName, _
                                      REG_USER_ID_FILEPATH & userIdFileName, _
                                      REG_MAIL_SERVER, _
                                      firstName, _
                                      "", _
                                      REG_CERT_ID_PWD, _
                                      "", _
                                      mailFileName, _
                                      "", _
                                      userPassword, _
                                      NOTES_DESKTOP_CLIENT)
        End If
    End If
End If
End Sub
Public Sub registerPerson2()
    Dim newUserDoc As NotesDocument

    firstName = "John"
    lastName = "Doe"

    Call calcUserIdFileName
    Call calcMailFileName

    Call reg.RegisterNewUser(lastName, _
        REG_USER_ID_FILEPATH & userIdFileName, _
        REG_MAIL_SERVER, _
        firstName, _
        "", _
        "", _
        "", _
        mailFileName, _
        "", _
        userPassword, _
        NOTES_DESKTOP_CLIENT)

    MsgBox reg.Contactnoteid
End Sub

reg.RegisterNewUser does not return contactNoteId

Mike O'Brien HCL: „I see that it could be convenient to have it be returned after registering a brand new person.

Thanks, we will look into this.”
Create Empty Document Collection (supported)

Returns an empty document collection.

Available since V8
Undocumented since V8
Supported & documented as of V 11.0.1

https://atnotes.de/index.php/topic,53402.0.html
New optional parameter “maintainOrder”

(Optional) Boolean `maintainOrder`.

Specifies that after the intersect / substract operation is complete, whatever order the originating view was in when the NotesEntryCollection was created will remain in force for subsequent entry processing.

That is, either the default view order will be used or that last set by calling `view.resortView`.

https://help.hcltechsw.com/dom_designer/11.0.1/basic/H_NOTESVIEWENTRYCOLLECTION_9327.html
New optional parameter “maintainOrder”

**Dim query As String**
**query = "Subject >= 'DEMO' AND Subject < 'DEN'"**

**Dim qdl As NotesDominoQuery**

**Set db = session.currentDataBase**
**Set view = db.getView("Samples")**

**Set qdl = db.CreateDominoQuery()**
**Set col = qdl.Execute(query)**

**MsgBox "----- Sorted by subject ----"**
**Call view.ResortView("Subject", True)**
**Set vec = view.Allentries**
**Call vec.Intersect(col, True)**
**Call printIt(vec, "Subject")**

**MsgBox "----- Sorted by category ----"**
**Call view.ResortView("category", False)**
**Set vec = view.Allentries**
**Call vec.Intersect(col, True)**
**Call printIt(vec, "category")**
Provides access to user location for supported platforms.
Currently supported for **HCL Nomad** beginning with Release 1.0.4.
Private Sub getCoordinates(GPS_COORDINATES As T_GPS_COORDINATES, lastError As integer)
    On Error GoTo err_handle
    Dim session As New NotesSession
    Dim gps As NotesGPS
    Dim gpsPosition As NotesGPSPosition
    Dim gpsCoordinates As NotesGPSCoordinates
    Set gps = session.Creategps()
    If Not gps.Requestaccess() Then Exit sub
    Set gpsPosition = gps.GetCurrentposition()
    Set gpsCoordinates = gpsPosition.Coordinates
    GPS_COORDINATES.latitude = gpsCoordinates.Latitude
    GPS_COORDINATES.longitude = gpsCoordinates.Longitude
    Exit_here:
    Exit sub
    err_handle:
    lastError = Err
    Resume exit_here
End Sub
@Platform([Specific]) (v12)

@Platform

Platform
iOS 14.4.2 phone 414,896

@Platform([SPECIFIC])

OK

@Prompt([Ok]: "Platform":@implode(@Platform([Specific])))

https://help.hcltechsw.com/dom_designer/12.0.0/basic/H_PLATFORM_FUNCTION.html
LotusScript / Java class to compile, tune, and run Domino Query Language queries.

<table>
<thead>
<tr>
<th>NotesDominoQuery</th>
</tr>
</thead>
<tbody>
<tr>
<td>MaxScanDocs</td>
</tr>
<tr>
<td>MaxScanEntries</td>
</tr>
<tr>
<td>NoViews</td>
</tr>
<tr>
<td>RebuildDesignCatalog</td>
</tr>
<tr>
<td>RefreshDesignCatalog</td>
</tr>
<tr>
<td>RefreshFullText</td>
</tr>
<tr>
<td>RefreshViews</td>
</tr>
<tr>
<td>TimeoutSec</td>
</tr>
<tr>
<td>CreateIndex()</td>
</tr>
<tr>
<td>Execute()</td>
</tr>
<tr>
<td>Explain()</td>
</tr>
<tr>
<td>ListIndexes()</td>
</tr>
<tr>
<td>Parse()</td>
</tr>
<tr>
<td>RemoveIndex()</td>
</tr>
<tr>
<td>ResetNamedVariables()</td>
</tr>
<tr>
<td>SetNamedVariable()</td>
</tr>
</tbody>
</table>
Create Views For DQL - Best Practice

Do not create manually. Use `dql.createIndex(viewName, field)`
Omit the optional parameters `isVisible` & `Nobuild`
Programmatically update if needed (``dql.removeIndex() & dql.createIndex()``)
Check with `dql.listIndexes()`
Use a prefix to identify the views/indexes for use with DQL & to avoid conflict with existing views.

```
Dim dq1 As NotesDominoQuery
Set dq1 = db.Createdominoquery()
Set dq1.namespace = "dql1_"
Call dq1.CreateIndex("idxBySubject", "Subject")
```

https://domino-ideas.hcltechsw.com/ideas/DDXP-I-818
Create Views For DQL

Public Class DqlIndexHelper
    Private session As NotesSession
    Private ns As String
    Private db As NotesDatabase
    Private dqI As NotesDominoQuery

    Public Sub New()
        Set me.session = New NotesSession
    End Sub

    Public Sub createIndex(tIdx As IDX)
        Set me.dqI = me.db.Createdominoquery()
        Call me.dqI.CreateIndex(
            me.ns & "" & tIdx.tName, tIdx.tFields, tIdx.tIsVisible, tIdx.tNoBuild)
    End Sub

    Public Sub removeIndex(tIdx As IDX)
        Dim view As NotesView
        Set me.dqI = me.db.Createdominoquery()
        Set view = me.db.Getview(me.ns & "" & tIdx.tName)
        Call dqI.RemoveIndex(me.ns & "" & tIdx.tName)
    End Sub

    Public Sub updateIndex(tIdx As IDX)
        Call me.RemoveIndex(tIdx)
        Call me.CreateIndex(tIdx)
    End Sub

    Public Property Set database As NotesDatabase
        Set Me.dd = database
    End Property

    Public Property Set namespace As String
        me.ns = namespace
    End Property
End Class

Helper Class to handle creation, removal and update of DQL indexes.
Supports namespace
createIndex()

Dim session As New NotesSession
Dim db As NotesDatabase
Set db = session.currentDatabase

Dim indexHelper As New DqlIndexHelper()
indexHelper.namespace = "domino"
Set indexHelper.database = db

Dim tIdx As IDX
tIdx.tName = "camp22"

ReDim tIdx.tFields(1)
tIdx.tFields(0) = "Subject"
tIdx.tFields(1) = "Folder"

tIdx.tIsVisible = true
tIdx.tNoBuild = False

Call indexHelper.createIndex(tIdx)

Index domino_camp22 on ec11.nsf successfully populated, and cataloged for field Subject - index will be usable for all DQL terms and sorting using the field name Subject

e11.nsf harvested, 0 catalog documents removed, 18 view designs or aliases cataloged out of 17 total with 4 field-usable columns 50.870 msecs and LastModified of
16.03.2022 08:13:13

CREATE INDEX operation of Index domino_camp22 on ec11.nsf SUCCEEDED
```vba
Dim session As New NotesSession
Dim db As NotesDatabase
Set db = session.currentDatabase

Dim indexHelper As New DqlIndexHelper()
indexHelper.namespace = "domino"
Set indexHelper.database = db

Dim tIdx As IDX
tIdx.tName = "camp22"

Call indexHelper.removeIndex(tIdx)
```

**ec11.nsf harvested.** 0 catalog documents removed, 17 view designs or aliases cataloged out of 16 total with 4 field-usable columns 48.70 msecs and LastModified of 16.03.2022 09:27:19

DELETE INDEX operation of Index domino_camp22 on ec11.nsf SUCCEEDED
updateIndex()

Dim session As New NotesSession
Dim db As NotesDatabase
Set db = session.currentDatabase

Dim indexHelper As New DqlIndexHelper()
indexHelper.namespace = "domino"
Set indexHelper.database = db

Dim tIdx As IDX
tIdx.tName = "camp22"
ReDim tIdx.tFields(1)
tIdx.tFields(0) = "Categories"
tIdx.tFields(1) = "Subject"

tIdx.tIsVisible = false
tIdx.tNoBuild = false

Call indexHelper.updateIndex(tIdx)

DELETE INDEX operation of Index domino_camp22 on ec11.nsf SUCCEEDED
Index (domino_camp22) (using hidden view) on ec11.nsf successfully populated, and cataloged for field Categories - index will be usable for all DQL terms and sorting using the field name Categories
ec11.nsf harvested, 0 catalog documents removed, 18 view designs or aliases cataloged out of 17 total with 5 field-usable columns
68.542 msecs and LastModified of 16.03.2022 09:35:21

CREATE INDEX operation of Index domino_camp22 on ec11.nsf SUCCEEDED
listIndexes()

Lists the indexes that are optimized for Domino DQL query terms. Results are returned in JSON format, with the following structure:

**Columnref** is whether DQL 'viewname'.columnname syntax can be used with the field and

**Fieldref** is whether the field name can be used directly in DQL terms.

```json
{
  "DBName": "dev\ordwrk2.nsf",
  "Indexes": [
    {
      "Indexname": "All",
      "Columnname": "Sales_person",
      "Columnref": true,
      "Fieldref": true
    },
    ...
  ]
}
```

https://help.hcltechsw.com/dom_designer/11.0.1/basic/H_LISTINDEXES_METHOD_JAVA.html
Dim session As New NotesSession
Dim db As NotesDatabase
Set db = session.currentDatabase

Dim indexHelper As New DqlIndexHelper()
Set indexHelper.database = db

Call indexHelper.listAllIndexes()
properties missing in documentation
https://help.hcltechsw.com/dom_designer/12.0.0/basic/H_NOTESVIEWCOLUMN_CLASS.html

See: “Identifying view columns used by DQL Processing”

“Show responses in a hierarchy“ must be set to OFF (it is default to on)

„The pain of remembering all settings is why we created CreateIndex.“
– John Curtis –
Public Sub checkViewColumn(tIdx As IDX, index As integer)
    Dim View As NotesView
    Dim column As NotesViewColumn
    Set view = me.db.getView(me.ns & "\"" & tIdx.tName)
    Set column = view.Columns(index)
    If column Is Nothing Then Exit Sub
    Dim ret As String
    ret = {View.SelectionFormula: } & view.Selectionformula & _
    Chr(13) & {Column.Ishierarchical: } & view.Ishierarchical & _
    Chr(13) & {Column.ItemName: } & column.Itemname & _
    Chr(13) & {Column.IsSorted: } & column.IsSorted & _
    Chr(13) & {Column.Issortdescending: } & column.IsSortDescending & _
    Chr(13) & {Column.Formula: } & column.Formula & _
    Chr(13) & {Column.Isvalidd Dominoquerycolumn: } & _
    column.IsvaliddDominoquerycolumn & _
    Chr(13) & {Column.Isvalidd Dominoqueryfield: } & _
    column.IsvaliddDominoqueryfield
End Sub
**NotesHttpRequest**

LotusScript class used to make HTTP requests to web servers.

<table>
<thead>
<tr>
<th>NotesHTTPRequest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maxredirects</td>
</tr>
<tr>
<td>PreferStrings</td>
</tr>
<tr>
<td>ResponseCode</td>
</tr>
<tr>
<td>TimeOutSec</td>
</tr>
<tr>
<td>DeleteRessource()</td>
</tr>
<tr>
<td>Get()</td>
</tr>
<tr>
<td>Post()</td>
</tr>
<tr>
<td>Put()</td>
</tr>
<tr>
<td>Patch()</td>
</tr>
<tr>
<td>SetHeaderField()</td>
</tr>
<tr>
<td>ResetHeaders()</td>
</tr>
<tr>
<td>GetResponseHeaders()</td>
</tr>
</tbody>
</table>

[https://help.hcltechsw.com/dom_designer/11.0.1/basic/H_NOTES_HTTPREQUEST_CLASS.html](https://help.hcltechsw.com/dom_designer/11.0.1/basic/H_NOTES_HTTPREQUEST_CLASS.html)
Call httpReq.get(URL)
MsgBox httpReq.Responsecode
Call `httpReq.get(URL)`
`MsgBox httpReq.ResponseCode`
Call `httpReq.get(URL)`
MsgBox `httpReq.ResponseCode`

```
DOMINO_FORCE401_WITH_HTML_LOGIN_PAGE=1
```

### Server Login

Please type your user name and password

<table>
<thead>
<tr>
<th>User name:</th>
<th>Ulrich Krause</th>
</tr>
</thead>
<tbody>
<tr>
<td>Password:</td>
<td>••••••••••</td>
</tr>
</tbody>
</table>

Log In
Function EncodeBase64 (StrIn As String) As String
  Dim session As New NotesSession
  Dim stream As NotesStream
  Dim db As NotesDatabase
  Dim doc As NotesDocument
  Dim body As NotesMIMEEntity

  Set stream = session.CreateStream
  Call stream.WriteString (StrIn)

  Set db = session.CurrentDatabase
  Set doc = db.CreateDocument
  Set body = doc.CreateMIMEEntity

  Call body.SetContentFromText (stream, "", ENC_NONE)
  Call body.EncodeContent (ENC_BASE64)

  EncodeBase64 = body.ContentAsText

  Call stream.Close
  Set doc = Nothing
End Function
In the 10.0.1 FP2 release of Notes/Domino two new properties were introduced in the NotesHTTPRequest class: PreferUTF8 and PreferJSONNavigator. We are not going to change the default behavior, so if you are fine using the class as it is in a previous release you may continue.

However, if you have experienced any of the issues mentioned in the KB article, it is recommended to start setting `PreferJSONNavigator = True` before making your request.
<table>
<thead>
<tr>
<th>NotesJsonArray</th>
<th>NotesJsonNavigator</th>
<th>NotesJsonObject</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size</td>
<td>PreferUTF8</td>
<td>Size</td>
</tr>
<tr>
<td>AppendArray()</td>
<td>AppendArray()</td>
<td>AppendArray()</td>
</tr>
<tr>
<td>AppendElement()</td>
<td>AppendElement()</td>
<td>AppendElement()</td>
</tr>
<tr>
<td>AppendObject()</td>
<td>AppendObject()</td>
<td>AppendObject()</td>
</tr>
<tr>
<td>GetFirstElement()</td>
<td>GetElementByName()</td>
<td>GetElementByName()</td>
</tr>
<tr>
<td>GetNextElement()</td>
<td>GetElementByPointer()</td>
<td>GetElementByPointer()</td>
</tr>
<tr>
<td>GetNthElement()</td>
<td>GetFirstElement()</td>
<td>GetFirstElement()</td>
</tr>
<tr>
<td></td>
<td>GetNextElement()</td>
<td>GetNextElement()</td>
</tr>
<tr>
<td></td>
<td>GetNthElement()</td>
<td>GetNthElement()</td>
</tr>
<tr>
<td></td>
<td>Stringify()</td>
<td>Stringify()</td>
</tr>
</tbody>
</table>

**NotesJsonElement**

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
</table>

**Type**

- `Jsonelem_type_array`
- `Jsonelem_type_boolean`
- `Jsonelem_type_empty`
- `Jsonelem_type_number`
- `Jsonelem_type_object`
- `Jsonelem_type_string`

[https://help.hcltechsw.com/dom_designer/12.0.0/basic/H_NOTESJSONNAVIGATOR_CLASS.html](https://help.hcltechsw.com/dom_designer/12.0.0/basic/H_NOTESJSONNAVIGATOR_CLASS.html)
CreateJsonNavigator("") creates an empty JObject
CreateJsonNavigator("["]") creates an empty JsonArray

```java
Set g_nav = g_session.Createjsonnavigator(""")
Set g_nav = g_session.Createjsonnavigator("[]")
Set g_nav = g_session.Createjsonnavigator(colors)
g_agentLog.logAction(g_nav.Stringify())
```
appendArray()

Set g_nav = g_session.Createjsonnavigator(""")
Call g_nav.Appendelement("LotusScript")
Call g_nav.Appendelement("Java")
Call g_nav.Appendelement("c/c++")

Set g_nav = g_session.Createjsonnavigator("[]")
Call g_nav.Appendelement("LotusScript")
Call g_nav.Appendelement("Java")
Call g_nav.Appendelement("c/c++")
Type property is **read-only** and cannot be set. Use this code as a workaround.

```vbscript
Set g_nav = g_session.CreateJSONNavigator(""
Call g_nav.AppendElement("Ulrich", "firstName")
Call g_nav.AppendElement("Krause", "lastName")
Call g_nav.AppendElement("62", "age")
Call g_nav.AppendElement(True, "developer")

Dim el As NotesJSONElement
Set el = g_nav.GetElementByName("age")

Dim oldValue As String
oldValue = el.value
el.value = CInt(oldValue)
g_agentLog.logAction(g_nav.Stringify())
```
Set g_nav = g_session.CreateJSONNavigator(_
{
    "color": "black",
    "category": "hue",
    "type": "primary",
    "code": {
        "rgba": [255, 255, 255, 1],
        "hex": "#000"
    }
})

Dim el As NotesJSONElement

Set el = g_nav.Getelementbypointer("/category")
Set el = g_nav.Getelementbypointer("/code/hex")
Set el = g_nav.Getelementbypointer("/code/rgba/3")

New in Domino Designer
12.0.0
What new in Domino Designer 12.0?

The following features are new in HCL Domino Designer 12.0.1.

- Transaction methods for LotusScript and Java Database classes
  New LotusScript and Java methods are provided for the Database class to record database transactions.

- Use formula Language in DQL search terms
  In HCL Domino® 12, Formula Language can be used in Domino Query Language (DQL) search terms.

- NotesQueryResultsProcessor class
  This new LotusScript and Java class aggregates, computes, sorts, and formats collections of documents across any set of Domino databases.

- XPages support for Bootstrap 4
  The XPages Extension Library now supports Bootstrap version 4.4.1.

- Hide columns or fields from smaller-resolution screens
  The new onSize event, @RelayoutWindow command, and @ResolutionWidth and @ResolutionHeight formulas allow you to hide columns and fields when they are displayed in smaller-resolution screens.

- Column properties in narrow views honored in Notes
  Column properties associated with narrow views specified in HCL Domino® Designer are now honored in HCL Notes® applications.
New LotusScript and Java methods are provided for the Database class to record database transactions.
Transaction methods for LotusScript and Java

Not available on the client

Method is not available for local databases on the client

Transaction rolling back and transaction commit can be called only after transaction begin

Transaction logging must be enabled on the application
Sub createDocument
    Dim s As New NotesSession
    Dim db As NotesDatabase
    Dim doc As NotesDocument

    Set db = s.Getdatabase("serv04", "transact.nsf")
    Call db.Transactionbegin()

    Set doc = db.Createdocument()
    Call doc.replaceItemValue("Form", "Memo")
    Call doc.replaceItemValue("Subject", "TestDoc")
    Call doc.save(True, False)

    'Call db.Transactioncommit()
    Call db.Transactionrollback()
End Sub
Transaction methods for LotusScript and Java

[1CB8:0002-179C] (4-108 [4]) OPEN_DB(serv04!!transact.nsf):
[1CB8:0002-179C] (OPEN_SESSION: 3 ms)
[1CB8:0002-179C] (Opened: REPC1258682:00169262) 3 ms. [134+290=424]
[1CB8:0002-179C] (5-108 [5]) **DB_BEGIN_TRANSACTION**(REPC1258682:00169262):
[1CB8:0002-179C] (6-108 [6]) **UPDATE_NOTE**(REPC1258682:00169262-NT00000000,00000005):
[1CB8:0002-179C] (7-108 [7]) **DB_ABORT_TRANSACTION**(REPC1258682:00169262):
[1CB8:0002-179C] (8-108 [8]) CLOSE_DB(REPC1258682:00169262):

[1CB8:0002-179C] (4-108 [4]) OPEN_DB(serv04!!transact.nsf):
[1CB8:0002-179C] (OPEN_SESSION: 3 ms)
[1CB8:0002-179C] (Opened: REPC1258682:00169262) 3 ms. [134+290=424]
[1CB8:0002-179C] (5-108 [5]) **DB_BEGIN_TRANSACTION**(REPC1258682:00169262):
[1CB8:0002-179C] (6-108 [6]) **UPDATE_NOTE**(REPC1258682:00169262-NT00000000,00000005):
[1CB8:0002-179C] (7-108 [7]) **DB_COMMIT_TRANSACTION**(REPC1258682:00169262):
[1CB8:0002-179C] (8-108 [8]) CLOSE_DB(REPC1258682:00169262):
Column properties associated with narrow views

https://help.hcltechsw.com/dom_designer/12.0.0/basic/wn_columnstyling_in_narrow_views.html
New properties are available in Domino® Designer to support applications that are used with the mobile client HCL Nomad. These features are supported as of Nomad for iOS 1.0.6 and Nomad for Android 1.0.

If a column in a view does not display well in a mobile client, you can hide it.

https://help.hcltechsw.com/dom_designer/11.0.1/basic/wn_new_properties_for_mobile.html
New properties to support HCL Nomad

If an **action** or a **field** does not display well in a mobile client, you can hide it.

https://help.hcltechsw.com/dom_designer/11.0.1/basic/wn_new_properties_for_mobile.html
New properties to support HCL Nomad

When there are **multiple frames** in an application, choose the **sequence** in which to navigate them in Nomad.

https://help.hcltechsw.com/dom_designer/11.0.1/basic/wn_new_properties_for_mobile.html
You can enable an action to be available in the **mobile actions button** in Nomad. From the Action properties box, select Include action in Mobile Actions button.

For more information see Nomad documentation

https://help.hcltechsw.com/nomad/1.0/mobile_actions_menu_button.html

https://help.hcltechsw.com/dom_designer/11.0.1/basic/wn_new_properties_for_mobile.html
The new onSize event, @RelayoutWindow command, and @ResolutionWidth and @ResolutionHeight formulas allow you to hide columns and fields when they are displayed in smaller-resolution screens.

These new design elements are particularly useful for applications accessed through mobile devices with smaller screen size.

https://help.hcltechsw.com/dom_designer/12.0.0/basic/wn_hide_columns_or_fields_from_smaller_screens.html
New in Domino Designer
12.0.1
What's new in Domino Designer 12.0.1?

The following features are new in HCL Domino Designer 12.0.1:

New methods for DQL named results
The DominoQuery class includes a new method, execute, that returns the results of a query to named results in a database.

New method to save sorted QRP results to a results view
The QueryResultsProcessor class includes a new method, ExecuteToView, that saves sorted results to a specialized results view in a database.

New methods for named documents
New methods are provided with the Database class to create and manage a new type of document referred to as a named document.

Ability to exclude fields from full-text search indexes
A new application property allows you to specify fields to exclude from full-text search indexing.

Larger database icons
Templates can have database icons that are up to 64x64 pixels in size.

UseDoubleAsPointer method for Notes session class
This new method for the LotusScript Notes session class lets you use a Double to handle a 64-bit pointer argument for a C API call.

Database comparison tool
A new application template, CompareDBs Reports (comparedbs.ntf), installed on the Domino 12.0.1 server, can be used to compare two database designs and/or document contents or to analyze the design of one database.
Templates can have database icons that are up to 64x64 pixels in size. Previously, database icons could be a maximum of 32x32 pixels.
Templates can have database icons that are up to 64x64 pixels in size. Previously, database icons could be a maximum of 32x32 pixels.

Pimp Your Client (Icon Set Database Download)
- Anett Hammerschmidt -

https://noteshexe.de/new-feature-hcl-notes-12-01/

https://help.hcltechsw.com/dom_designer/12.0.0/basic/wn_template_with_larger_application_icons.html
session.UsedoubleAsPointer = True

Print "Calling OSMemAlloc with size, setting active", dwDWordOne
wWordOne = OSMemAlloc(wWordTwo, dwDWordOne, dwDWordTwo)

If(wWordOne = 0) Then
   Print "OSMemAlloc worked, continuing with handle", dwDWordTwo
dRetDouble = OSLockObject(dwDWordTwo)
   If(dRetDouble > 0) Then
      Print "OSLockObject worked, calling XXX"
      OSUnlockObject(dwDWordTwo)
   Else
      Print "OSLockObject failed"
   End If
   Print "Freeing memory"
   wWordOne = OSMemFree(dwDWordTwo)
End If

session.UsedoubleAsPointer = False

Allows to use a Double to handle a 64-bit pointer argument for a C API call.
A workaround was previously available through the Domino notes.ini setting LS64BITCCALLOUTPointerSupport=1. However, the notes.ini approach had the downside of applying to all LotusScript agents on the server.

https://help.hcltechsw.com/dom_designer/beta/12.0.1/basic/wn_usedoubleaspointer.html
Named Documents
New methods are provided with the Database class to create and manage a new type of document referred to as a named document.

A named document has a name rather than a NotelID and does not appear in the Notes client or in any view.

A named document is designed for programmatic access and is a functional replacement for profile documents which have been used previously.
**db.getNamedDocument(String Name, Optional String username) As NotesDocument**

https://help.hcltechsw.com/dom_designer/beta/12.0.1/basic/H_GETNAMEDDOCUMENT_METHOD.html

```vba
Dim ss As New NotesSession
Dim db As NotesDatabase
Dim named As NotesDocument

Const userName = ".ulrich.krause;"
Const namedDocName = "named1,,,...  ...doc"

Set db = ss.CurrentDatabase
Set named = db.getNamedDocument(namedDocName, userName)
Call named.replaceItemValue("someItem","someValue2")
'Call named.save( True, False)

MsgBox named.Nameofdoc
MsgBox named.Usernameofdoc
MsgBox named.someItem(0)
```

SPR # MAVACCAE8N: https://support.hcltechsw.com/csm?id=kb_article&sysparm_article=KB0097119
For related LotusScript documentation, see the following topics:

- GetNamedDocument (NotesDatabase - LotusScript)
- GetNamedDocumentCollection (NotesDatabase - LotusScript)
- IsNamedDoc (NotesDocument - LotusScript)
- IsNewNote (NotesDocument - LotusScript)
- NameOfDoc (NotesDocument - LotusScript)
- UserNameOfDoc (NotesDocument - LotusScript)

For related Java documentation, see the following topics:

- getNamedDocument (Database - Java)
- getNamedDocumentCollection (Database - Java)
- IsNamedDoc (Document - Java)
- IsNewNote (Document - Java)
- getNameOfDoc (Document - Java)
- getUserNameOfDoc (Document - Java)
Exclude fields from full-text search indexes

To generate more useful full-text search results and to **save space**, you can exclude fields in an application that aren't relevant for full-text searches.

Add `FT_DEBUG_DISABLE_DB_RULES=0` to the server notes.ini. You must **restart the server** for the change to take effect.

[https://help.hcltechsw.com/dom_designer/12.0.0/basic/wn_excludefieldsfromftsearches.html](https://help.hcltechsw.com/dom_designer/12.0.0/basic/wn_excludefieldsfromftsearches.html)
Exclude fields from full-text search indexes
Exclude fields from full-text search indexes

AMgr: Start executing agent 'qry' in 'ftdemo.nsf'
Agent Manager: Agent printing: initial query.

Full Text message: Index does not exist. (No such file or directory)
03/26GTR search error for "/local/notesdata/ftdemo.ft/ftgi": Index does not exist.: Full text index not found for this database
Agent Manager: Agent error: NotesException: Domino Query execution error: Full text index not found for this database - error during planning and tree generation  idNumber > 20 AND idNumber < 30 (Call hint: FTSearchExt, Core call #0)****************
Agent Manager: Agent error: at lotus.domino.local.DominoQuery.execute(Unknown Source)
Agent Manager: Agent error: at JavaAgent.NotesMain(JavaAgent.java:35)
Agent Manager: Agent error: at lotus.domino.AgentBase.runNotes(Unknown Source)
Agent Manager: Agent error: at lotus.domino.NotesThread.run(Unknown Source)
AMgr: Agent 'qry' in 'ftdemo.nsf' completed execution
OSGi (Open Service Gateway Initiative) is a Java framework for developing and deploying modular software programs and libraries.

The OSGi framework provides a dynamic modular architecture which has been used in many applications such as Eclipse Equinox, Apache Felix, etc.

Modularity enables programmers to do functionality testing in isolation and engage in parallel development efforts during a given sprint or project. This increases efficiency throughout the entire software development life-cycle.

OSGi is only a thin runtime that governs how bundles are loaded/stopped (lifecycle), their dependencies, how their services are exposed, etc.

https://www.osgi.org
In OSGi, a single component is called a **bundle**. **Logically**, a bundle is a piece of functionality that has an independent lifecycle – which means it can be started, stopped and removed independently. **Technically**, a bundle is just a jar file with a MANIFEST.MF file containing some OSGi-specific headers.

A bundle can require other bundles and export packages that can be accessed by other OSGi components.
DOTS & OSGi (Bundle)

**DOTS** is a generic Domino add-in task that lets users create Domino server tasks by creating a tasklet container using Java OSGi plugins.

A **tasklet** is a lightweight server add-in task written in Java and declared as an OSGi extension point.
DOTS Components

Domino Server task **ndots.exe** installed at `{dominobin}` directory. Launches a JVM and invokes code located in `launcher.jar` to launch the OSGi container.

The **OSGi framework** located in `{dominobin}/osgi-dots/rcp/eclipse` contains the core plugins to run the OSGi framework.

The **com.ibm.dots** plugin located in `{dominobin}/osgi-dots/shared/eclipse/plugins`, is part of the DOTS framework. This plugin is essential to communicate between the DOTS server task and the server tasklet plugins.

**Domino Extension manager library dotsextmgr.dll** installed at `{dominobin}` directory. Responsible for posting the events to the tasklet container for further processing by the triggered tasklets.

**dotssec.jar** file installed at `{dominobin}/osgi-dots` directory acts as a DOTS security hook.

**launcher.jar** file installed at `{dominobin}/osgi-dots` directory. Responsible for launching the OSGi framework.
DOTS Benefits

Multi platform support
Built-in mechanism to access server task user arguments.
Command line options.
Easy deployment. Just drop a single .jar file into the file system.
Tasklet run in the context of the server. No design element signing needed.
No limitations like in the Agent Manager. DOTS tasks can run every second and as long as needed.
Better tooling with Eclipse IDE and its first-class Java and plugins editors and Java.
Source Control Management.
Shared bundles. Can be used in different plugins.
Choose an IDE

- Eclipse: https://www.eclipse.org
- Visual Studio Code: https://code.visualstudio.com
- IntelliJ IDEA: https://www.jetbrains.com/idea/
package de.eknori.osgi.hello;

import org.osgi.framework.BundleActivator;

public class Activator implements BundleActivator {
    private static BundleContext context;

    static BundleContext getContext() {
        return context;
    }

    public void start(BundleContext bundleContext) throws Exception {
        Activator.context = bundleContext;
    }

    public void stop(BundleContext bundleContext) throws Exception {
        Activator.context = null;
    }
}
package de.eknori.osgi.hello;

import org.eclipse.core.runtime.IProgressMonitor;

public class HelloWorld extends AbstractServerTask {
    public HelloWorld() {
    }

    @Override
    public void dispose() throws NotesException {
        logMessage("BYE WORLD!!");
    }

    @Override
    public void run(RunWhen arg0, String[] arg1, IProgressMonitor arg2) throws NotesException {
        logMessage("HELLO WORLD!");
    }
}
To launch the DOTS container, use the following command from the Domino serverconsole: „load dots“ and to stop a running DOTS container use „tell dots quit“.

The JVM loaded by DOTS supports **JavaOptionsFile** notes.ini setting for any user-specific JVM options.

The JVM loaded by DOTS uses the **default max and min** heap values of 1024MB and 64MB respectively.

You can customize heap size values by using the notes.ini setting **DOTSJavaMaxHeapSize** and **DOTSJavaMinHeapSize**. For example:

```
DOTSJavaMinHeapSize = 128M
DOTSJavaMaxHeapSize = 2048M
```

The following notes.ini variables from prior versions of DOTS are no longer available in Domino V12:

- DOTS_DEBUGADDRESS
- DOTS_DEBUGSUSPEND
- DOTS_JavaOptionsFile
JavaUserOptionsFile

// notes.ini
// ---------------------------------------------
JavaOptionsFile=d:/domino/data/javaoptions.txt

// ---------------------------------------------
// javaOptions.txt
// ---------------------------------------------
-Duser.country=US
-Duser.language=en
-Djava.security.manager -Djava.security.policy=./data/custom.policy

// ---------------------------------------------
// custom.policy file added at runtime
// -Djava.security.manager -Djava.security.policy=custom.policy
// ---------------------------------------------

grant {
    permission java.lang.RuntimePermission "ClassLoader";
    permission java.lang.RuntimePermission "ContextClassLoader";
    permission java.lang.RuntimePermission "accessDeclaredMembers";
    permission java.lang.reflect.ReflectionPermission "suppressAccessChecks";
};
To remote debug the DOTS tasklet application, use the following notes.ini settings, which are the same used for other Java applications:

- `JavaEnableDebug=1`
- `JavaDebugOptions=transport=dt_socket,server=y,suspend=n`

The address should be the random port allocated by the JVM.

Adding address attribute (e.g. `address=8000`) in `JavaDebugOptions` may interfere with other JVM load and will lead to a crash.

The issue is being tracked under **SPR# NBALC3LAVJ**
Simple actions & @formula
No way. But such agents do not have complex code. It should be easy to rewrite them in Java.

LotusScript
As with agents, LotusScript cannot be transferred to DOTS. LotusScript classes have equivalent Java classes and the code can be rewritten.

Java
copy & paste
HCL Domino OSGi Tasklet Service (DOTS)

Applies to
HCL Domino 12.0

Introduction
The Domino OSGi Tasklet Service (DOTS) is available again in HCL Domino 12. See the documentation for complete details.

Domino OSGi Tasklet Service (DOTS) Documentation
QueryResultsProcessor
NotesQueryResultsProcessor (V12)

Contained by NotesDatabase
Aggregates, computes, sorts, and formats collections of Documents

```
Dim session As New NotesSession
Dim db As NotesDatabase
Set db = session.Currentdatabase
Dim qrp As NotesQueryResultsProcessor
Set qrp = db.CreateQueryResultsProcessor()
```

https://help.hcltechsw.com/dom_designer/12.0.0/basic/H_NOTESQUERYRESULTSPROCESSOR_CLASS.html
addCollection()

Dim session As New NotesSession
Dim db As NotesDatabase
Dim qrp As NotesQueryResultsProcessor
Dim ndc As NotesDocumentCollection
Set db = session.CurrentDatabase
Set qrp = db.CreateQueryResultsProcessor()  

Call qrp.AddCollection(db.Alldocuments, "coll_01")

Call qrp.AddDominoQuery(db.Createdominoquery(), "@All", "coll_02")

Call qrp.AddCollection(db.getView("all").AllEntries, "coll_03")

Set ndc = db.Ftsearch("animal", 5000)
Call qrp.AddCollection(ndc, "coll_04")

Set ndc = db.Search("/"bird" *= species!, nothing, 0)
Call qrp.AddCollection(ndc, "coll_05")

Adds a NotesDocumentCollection or NotesViewEntryCollection to the Documents being processed

https://help.hcltechsw.com/dom_designer/12.0.0/basic/H_ADDCOLLECTION_METHOD.html
Set qrp = db.CreateQueryResultsProcessor()

Call qrp.AddCollection(_
db.Alldocuments, "rslt_1")

Call qrp.AddDominoQuery(_
db.Createdominoquery(), "@All", "rslt_1")

A unique name (to the QueryResultsProcessor instance) of the input collection is required
executeToJson()

Dim session As New NotesSession
Dim db As NotesDatabase
Dim dq As NotesDominoQuery
Dim qrp As NotesQueryResultsProcessor
Dim nav As NotesJSONNavigator

Set db = session.CurrentDatabase
Set dq = db.CreateDominoQuery()

Set qrp = db.CreateQueryResultsProcessor()
Call qrp.AddDominoQuery(dq, QRY_ALL_CATS_AND_DOGS, "qrp_dq")
Call qrp.AddColumn("name", "", "", SORT_ASCENDING, False, False)

Set nav = qrp.ExecuteToJson()
json = nav.Stringify()

Processes the input collections in the manner specified by the Sort Columns, overriding field values with formulas specified via addFormula calls, and returns JSON output to a NotesJsonNavigator object.

The JSON syntax produced by QueryResultsProcessor execution conforms to JSON RFC 8259

https://help.hcltechsw.com/dom_designer/12.0.0/basic/H_EXECUTETOJSON_METHOD.html
Special keys “@nid” for NoteID and “@DbPath” are output so results can be acted upon on a document basis. All results are output under the “StreamResults” top element key.
Set qrp = db.CreateQueryResultsProcessor()
Call qrp.AddDominoQuery(_
dq, QRY_ALL_CATS_AND_DOGS, "cats_dogs")
Call qrp.Addcollection(_
dbBirds.Alldocuments, "birds")

'Call qrp.AddColumn("name","","", SORT_ASCENDING, False, False)
'Call qrp.AddColumn("name","","", SORT_ASCENDING)
'Call qrp.AddColumn("name",,, SORT_ASCENDING)
Call qrp.AddColumn("name")

Call qrp.AddColumn("weight",,,True)

https://help.hcltechsw.com/dom_designer/12.0.0/basic/H_ADDCOLUMN_METHOD.html
Method: AddFormula()

Provides Domino formula language to **override the data** used to generate values for a particular sort column and an input collection or set of collections. Since input collections can be created from different databases, **design differences** can be adjusted using addFormula() to **produce homogenous values** in the output.

https://help.hcltechsw.com/dom_designer/12.0.0/basic/H_ADDFORMULA_METHOD.html
### Database Comparison

#### Before: Animals
- **Field Name**: Revisions, Data Type: Time-Date, Size: 10, Value: 21.02.2021 09:34:23
- **Field Name**: UpdatedBy, Data Type: Names, Size: 30, Value: CN-Ulrich Krause/G.
- **Field Name**: categories, Data Type: Text, Size: 8, Value: cinema
- **Field Name**: color, Data Type: Text, Size: 6, Value: blue
- **Field Name**: firstSeen, Data Type: Time-Date, Size: 10, Value: 21.10.1980
- **Field Name**: Form, Data Type: Text, Size: 8, Value: animal
- **Field Name**: lastSeen, Data Type: Time-Date, Size: 10, Value: 06.09.1982
- **Field Name**: name, Data Type: Text, Size: 8, Value: Boomer
- **Field Name**: species, Data Type: Text, Size: 5, Value: dog
- **Field Name**: weight, Data Type: Number, Size: 10, Value: 12

#### After: Dino
- **Field Name**: Revisions, Data Type: Time-Date, Size: 30, Value: 21.02.2021 09:39:05
- **Field Name**: UpdatedBy, Data Type: Names, Size: 30, Value: CN-Ulrich Krause/G.
- **Field Name**: categories, Data Type: Text, Size: 15, Value: Jurassic Park
- **Field Name**: color, Data Type: Text, Size: 8, Value: yellow
- **Field Name**: name, Data Type: Text, Size: 7, Value: T-REX
- **Field Name**: firstSeen, Data Type: Time-Date, Size: 10, Value: 28.10.1970
- **Field Name**: lastSeen, Data Type: Time-Date, Size: 10, Value: 19.11.2020
- **Field Name**: species, Data Type: Text, Size: 6, Value: dino
- **Field Name**: weight, Data Type: Number, Size: 10, Value: 1000

---

Synchronize Selections: On

Show: All fields

Close
Design difference

Dim session As New NotesSession
Dim db As NotesDatabase
Dim dbDino As NotesDatabase
Dim qrp As NotesQueryResultsProcessor
Dim nav As NotesJSONNavigator

Set db = session.CurrentDatabase
Set dbDino = session.GetDatabase("", "dino.nsf")

Set qrp = db.CreateQueryResultsProcessor()

Call qrp.AddCollection(db.Alldocuments, "cats_dogs")
Call qrp.AddCollection(dbDino.Alldocuments, "dino")
Call qrp.AddFormula("name", "displayName", "cats_dogs")
Call qrp.AddFormula("dinoName", "displayName", "dino")
Call qrp.AddColumn("displayName")

Set nav = qrp.ExecuteToJson()
json = nav.Stringify()
Dim session As New NotesSession
Dim db As NotesDatabase

Set db = session.CurrentDatabase

Dim qrp As NotesQueryResultsProcessor
Set qrp = db.CreateQueryResultsProcessor()
Call qrp.AddCollection(db.Alldocuments, "rslt_1")

Call qrp.AddColumn("costcenter")
Call qrp.AddFormula(_
    @[DbLookup("";"";"costcenter";10;"costcenter")], _
    "costcenter","rslt_1")

Call qrp.AddFormula(_
    @[If(costcenter="10";"DOGHOUSE";"OTHER")], _
    "costcenter","rslt_1")
Call qrp.AddColumn("name")
Beginning in HCL Domino® 12, Formula Language can be used in Domino Query Language (DQL) search terms.

Formula Language provides full expression handling, intra-document field searches, and the ability to leverage an extensive library of @function calls.

Use the @FL (or @FORMULA, case insensitive) clause to encapsulate Formula Language syntax within DQL terms.
New methods for DQL named results

Executes a query string passed in according to set parameters and **returns named results** in a database where they can be accessed again more quickly.

For **reuse** of complex queries, this saves significant processing time.

```java
Session session = getSession();
DominoQuery dominoQuery = null;
DocumentCollection coll = null;
DocumentCollection coll2 = null;

Database sourceDb = session.getCurrentDatabase();
sourceDb.removeAllQueryNamedResults();

dominoQuery = sourceDb.createDominoQuery();
dominoQuery.setMaxScanDocs(Integer.MAX_VALUE);
dominoQuery.setMaxScanEntries(Integer.MAX_VALUE);

String query = "idNumber > 20 AND idNumber < 30";
coll = dominoQuery.execute(query, "named_rslt_1");

for (int i = 21; i < 30; i++) {
    query = String.format("in ('named_rslt_1') and idNumber = %d", i);
    coll2 = dominoQuery.execute(query);
}
```

[37D8:0046-3FC4] 18.03.2022 07:45:31 Error: writing named foundset "named_rslt_1": Entry already in index

https://help.hcltechsw.com/dom_designer/beta/12.0.1/basic/wn_dqlnamedresults.html
Agent printing: initial query.
Success: writing named foundset "named_rslt_1"
Agent printing: @f1('idNumber > 20 & idNumber < 30') found 45421 results in 26734 msec.

Agent printing: query using named foundset 'named_rslt_1'.
Agent printing: in ('named_rslt_1') and idNumber = 21 found 5073 results in 4766 msec.
Agent printing: in ('named_rslt_1') and idNumber = 22 found 4879 results in 4609 msec.
Agent printing: in ('named_rslt_1') and idNumber = 23 found 5005 results in 4532 msec.
Agent printing: in ('named_rslt_1') and idNumber = 24 found 5132 results in 4562 msec.
Agent printing: in ('named_rslt_1') and idNumber = 25 found 4981 results in 4531 msec.
Agent printing: in ('named_rslt_1') and idNumber = 26 found 5059 results in 4594 msec.
Agent printing: in ('named_rslt_1') and idNumber = 27 found 5015 results in 4688 msec.
Agent printing: in ('named_rslt_1') and idNumber = 28 found 5152 results in 4625 msec.
Agent printing: in ('named_rslt_1') and idNumber = 29 found 5125 results in 4531 msec.

Agent printing: query without named foundset.
Agent printing: idNumber = 21 found 5073 results in 18125 msec.
Agent printing: idNumber = 22 found 4879 results in 18047 msec.
Agent printing: idNumber = 23 found 5005 results in 17328 msec.
Agent printing: idNumber = 24 found 5132 results in 18172 msec.
Agent printing: idNumber = 25 found 4981 results in 17437 msec.
Agent printing: idNumber = 26 found 5059 results in 17563 msec.
Agent printing: idNumber = 27 found 5015 results in 17281 msec.
Agent printing: idNumber = 28 found 5152 results in 17557 msec.
Agent printing: idNumber = 29 found 5125 results in 17484 msec.

Total time: 68172 msec

Agent printing: query using named foundset 'named_rslt_1'.
Agent printing: in ('named_rslt_1') and idNumber = 21 found 5073 results in 4766 msec.
Agent printing: in ('named_rslt_1') and idNumber = 22 found 4879 results in 4609 msec.
Agent printing: in ('named_rslt_1') and idNumber = 23 found 5005 results in 4532 msec.
Agent printing: in ('named_rslt_1') and idNumber = 24 found 5132 results in 4562 msec.
Agent printing: in ('named_rslt_1') and idNumber = 25 found 4981 results in 4531 msec.
Agent printing: in ('named_rslt_1') and idNumber = 26 found 5059 results in 4594 msec.
Agent printing: in ('named_rslt_1') and idNumber = 27 found 5015 results in 4688 msec.
Agent printing: in ('named_rslt_1') and idNumber = 28 found 5152 results in 4625 msec.
Agent printing: in ('named_rslt_1') and idNumber = 29 found 5125 results in 4531 msec.

Total time: 159094 msec
Dim session As New NotesSession
Dim db As NotesDatabase
Dim qrp As NotesQueryResultsProcessor
Dim nav As NotesJSONNavigator

Set db = session.CurrentDatabase

Set qrp = db.CreateQueryResultsProcessor()
Call qrp.AddCollection(db.Alldocuments, "cats_dogs")
Call qrp.AddColumn("
weight", ",", SORT_DESCENDING, false, true)
Call qrp.AddColumn("
categories", ",", SORT_DESCENDING, false, false)

Call qrp.AddColumn("
name"
)

Set nav = qrp.ExecuteToJson()
json = nav.Stringify()
```plaintext
Dim session As New NotesSession
Dim db As NotesDatabase
Dim qrp As NotesQueryResultsProcessor
Dim nav As NotesJSONNavigator

Set db = session.CurrentDatabase

Set qrp = db.CreateQueryResultsProcessor()
Call qrp.AddColumn(db.Alldocuments, "cats_dogs")
Call qrp.AddColumn(_
    "categories", "", "", SORT_DESCENDING, false, false)
Call qrp.AddColumn(_
    "weight", "", "", SORT_DESCENDING, false, false)
Call qrp.AddColumn("name")

Set nav = qrp.ExecuteToJson() json = nav.Stringify()
```

<table>
<thead>
<tr>
<th>Name</th>
<th>Species</th>
<th>Weight</th>
<th>Color</th>
<th>First Seen</th>
<th>Last Seen</th>
<th>Categories</th>
</tr>
</thead>
<tbody>
<tr>
<td>AOUIso</td>
<td>dog</td>
<td>25</td>
<td>blackwhite</td>
<td>21.10.1980</td>
<td>06.03.1982</td>
<td>AOUIso</td>
</tr>
<tr>
<td>AOUIsou</td>
<td>dog</td>
<td>12</td>
<td>blue</td>
<td>22.10.1980</td>
<td>08.04.1982</td>
<td>cinema</td>
</tr>
<tr>
<td>Boomer</td>
<td>dog</td>
<td>12</td>
<td>blue</td>
<td>21.10.1980</td>
<td>06.03.1982</td>
<td>cinema, TV, Conferences</td>
</tr>
<tr>
<td>Lassie</td>
<td>dog</td>
<td>25</td>
<td>blackwhite</td>
<td>21.10.1980</td>
<td>06.03.1982</td>
<td>cinema, TV</td>
</tr>
</tbody>
</table>

```json
{
  "StreamResults": [
    {
      "@nid": "NT000008F6",
      "@DbPath": "D:\\Notes\\Data\\animals1.nsf",
      "categories": [
        "cinema",
        "TV",
        "Conferences"
      ],
      "weight": 12,
      "name": "Boomer"
    },
    {
      "@nid": "NT000008FA",
      "@DbPath": "D:\\Notes\\Data\\animals1.nsf",
      "categories": [
        "cinema",
        "TV"
      ],
      "weight": 25,
      "name": "Lassie"
    }
  ]
}
```
Dim session As New NotesSession
Dim db As NotesDatabase
Dim qrp As NotesQueryResultsProcessor
Dim nav As NotesJSONNavigator

Set db = session.CurrentDatabase

Set qrp = db.CreateQueryResultsProcessor()
Call qrp.AddColumn("
"categories", ",", ",", SORT_DESCENDING, false, TRUE)
Call qrp.AddColumn("
"weight", ",", ",", SORT_DESCENDING, false, false)
Call qrp.AddColumn("
"name"

Set nav = qrp.ExecuteToJson()  
json = nav.Stringify()
Aggregate functions

Aggregate function names begin with `double @@` signs and are case insensitive. They cannot be nested one within another. Their numeric output can be either integer or floating-point values.

`@@avg(colname)` Returns the sum all values of col1 within the current category divided by the number of documents.

`@@sum(colname)` Returns the sum of all values of col2 within the current category.

`@@max(colname)` Returns the maximum numeric value of col3 within the current category.

`@@min(colname)` Returns the minimum numeric value of col4 within the current category.

`@@count()` Returns the count of documents within the current category.
Dim session As New NotesSession
Dim db As NotesDatabase
Dim qrp As NotesQueryResultsProcessor
Dim nav As NotesJSONNavigator

Set db = session.CurrentDatabase

Set qrp = db.CreateQueryResultsProcessor()
Call qrp.AddCollection(db.Alldocuments, "cats_dogs")
Call qrp.AddColumn("weight", ",", ",", SORT_ASCENDING, false, true)
Call qrp.AddColumn("@count()")
Call qrp.AddColumn("@sum(weight)")
Call qrp.AddColumn("name")

Set nav = qrp.ExecuteToJson()
json = nav.Stringify()
Saves sorted QueryResultsProcessor results to a "results view" in a database. Processes the input collections in the manner specified by the Sort Columns, overriding field values with formulas specified via addFormula calls. Creates a results view in a host database and returns View object.
Results views are generated programmatically, so they are designed to be discarded after use.

Results views contain unique NoteIDs that cannot be referenced.

Security for results views is implemented at the view level.
Known Issues - SPR # MAVACCJG6J

In line with SPR # MAVACCJG6J, a fix for that issue has been identified. It is subject to changes, but it has been submitted to version 12.0.2.
If you need an immediate fix, just let me know so I can request for a hotfix. – HCL support -
NotesQueryResultsProcessor - How it works

Input
(Notes)DocumentCollections

- doccol1
- DQL1
- ftcol1
- Dbsearch
doccol
- DQL2

Quick fetch including DQL executes (uses formula overrides)

Optional join/lookup

Combine

Fetch

Sort

Specified output

Json

View

Domino sort service (with streaming optimization)
• AddCombineRule (left programmatic name, rule, right programmatic name)
  ➢ Prior to sort or view create, combine data using the sort columns (with applied formulas) using the specified rule (or method)
  ➢ “Join” is the most familiar rule type, also keyword lookup ++
• SetOutputType (type, viewname, streamtype)
  ➢ View (with name) or stream (with streamtype)
• Execute (run the result processor)
Thank you
QUESTIONS?

Use the GoToWebinar Questions Pane

Please keep all questions related to the topics that our speakers are discussing!!!

Unrelated Question => post at: http://openntf.slack.com/