



CONNECTING
THE WORLD

The logo consists of a dark blue globe with a grid of latitude and longitude lines, centered within a light blue circular border. The letters 'NF' are positioned above the number '23', both in a large, white, sans-serif font.

NF
23

CONNECTING
THE WORLD

Niagara Internationalization

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Overview

- Internationalization
- Localization
- Lexicons
- XSS
- Lexicon Tools

Internationalization.

hello



Overview

- **Internationalization (I18N)**
 - Implementing software for the global market
- **Localization (L10N)**
 - Adapting (I18N) to a specific region or language.
 - Achieved through translating text, applying units, number formats etc.

Localization with Niagara

Lexicons

Lexicons

- What are Lexicons.
- How do Lexicons relate to Niagara.
- Localization with Lexicons.

```
Monday=Monday
```

```
# Montag
```

```
Monday=Lundi
```

```
Monday=Pazartesi
```

Java – Example

```
private static void showExample(Context cx)
{
    LexiconModule lex = LexiconModule.make("web");
    System.out.println("This is the German Example:");
    //Language is set to German in context with Java Locale code "de"
    System.out.println("Context Language: " + Context.getLanguageTag(cx));
    // M\u00E4rz
    System.out.println("lex.getText is: " + lex.getText("march", cx));
    // M\u00E4rz
    System.out.println("lex.getSafeText is: " + lex.getHtmlSafeText("march", cx));
}
```

JavaScript - Example

```
require(["lex!web"], function (lexs) {  
  const [WEB_LEX] = lexs,  
    LEX_KEY = "march";  
  console.log("Not Safe: ",WEB_LEX.get(LEX_KEY));  
  console.log("Safe: ", WEB_LEX.getSafe(LEX_KEY));  
});
```

Localization with Niagara

Numbers



Numbers

- 1,000.00 (*en*) – English
- 1.000,00 (*de*) – German
- 1'000.00 (*de-CH*) – German for Swiss Region
- 1.000,00 (*fr*) – French

Localization with Niagara

Date and Time

Date and Time

- Date and Time has 4 Parts: Date, Time, Meridian (AM/PM), Time Zone.

```
"M/D/YY h:mm:ss a z"
```

```
"DD-MMM-YY HH:mm:ss z"
```

```
5/15/23 1:00:00 PM UTC
```

```
15-May-23 13:00:00 UTC
```

Localization with Niagara

Units

Units

- Units set to 'None' by default. But, 'Metric' and 'US/English' are available

```
<convert metric="celsius" english="fahrenheit"/>  
<convert metric="kilometers per hour" english="miles per hour"/>
```

Configuring Options and Setting Units

- For Workbench User:
 - Workbench -> Tools -> Options -> General
 - Sets "niagara.lang" system property
- For Station User:
 - Config -> Services -> UserService -> User
 - Sets language, time formats and units.
- Alternatively set locale in console
 - Command: `wb -locale:"country code"`

Hello World

Why do Java developers wear glasses?
Because they can't C#



LexiconModule

- Fixes shortcomings of legacy *Lexicon* class.
- Efficient, multilingual and reliable.
- Recommended due to context getting passed.

Time Formats and Facets

```
private void showFormattedDate()  
{  
    Context cx = new BasicContext(Context.NULL, BFacets.make("timeFormat",  
        getDateFormat()));  
    setDateWithFacets(getTimeStamp().toString(cx));  
}
```

My Host : UK2ALT23FF2J3.global.ds.honeywell.com (Niagara_Forum_2023) : Station (Niagara_Forum_2023) : Config : CodeExample : FacetsExample

AX Prop

Nav

My Network

My Host : UK2ALT23FF2J3.global.ds.honeywell.com (

10.10.20.190 (JACE01)

Property Sheet

FacetsExample (My Component)

Date Format	MMM-YYYY
Time Stamp	15-May-2023 12:00 AM BST
Date With Facets	May-2023

Time Formats and Facets

BFacets.SHOW_TIME=false;	15-05-23
BFacets.SHOW_DATE=false;	13:30:00 UTC
BFacets.SHOW_MILLISECONDS=true;	13:30:00.015 UTC
BFacets.SHOW_TIME_ZONE=false;	15-05-23 13:30:00 PM

Lexicon Tools

Diagnostic Lexicons



Diagnostic Lexicon

- What is it?
- How is it used?
- Why is it used?
- Path to `system.properties`
 - Niagara installation folder -> defaults folder -> `system.properties`

Diagnostic Lexicon

```
19 #System.Properties
20 niagara.lexicon.diagnostics=true
21 niagara.lexicon.diagnostics.prefix=~
22
```

Niagara_Forum_2023



~~Username:

[~~Change User](#)

~~Password:

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Diagnostic Lexicon

```
#System.Properties  
niagara.lexicon.diagnostics=true  
niagara.lexicon.diagnostics.prefix=lexiconModule-lexiconLang-lexiconKey=
```

forumCodeExample-en-stationName=NF2023



web-en-login.username=Username:

[web-en-login.changeuser=Change User](#)

web-en-login.password=Password:

web-en-login.eula.preText=Use of this software is subject to the
[web-en-login.eula.eulaLinkTitle=End User License Agreement](#) web-en-login.eula.linkSubText=and other [web-en-login.eula.thirdPartyLicensesLinkTitle=Third Party Licenses](#)

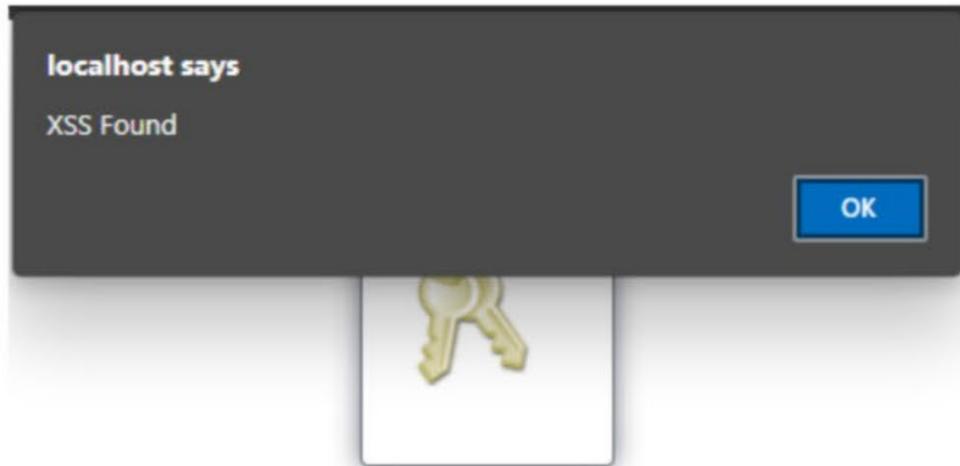
web-en-login.eula.licenseExpirationDate=Your license expires on 31-baja-en-december.short=Dec-32.

web-en-login.nwl.link=To connect using Niagara Web Launcher [web-en-login.webstart.link=click here](#)

Cross-Site-Scripting (XSS)

- Escape the untrusted – Use `getSafe/getHtmlSafe`
- Use diagnostic lexicon to uncover the known/unknown.
- Dialogs text is safe by default – `dialogs.show("maliciousScript()")` is safe

XSS – Example



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Your license expires on 31-Dec-32.

To connect using Niagara Web Launcher [click here](#)

`lex.get("login.username")`



`lex.getSafe("login.username")`



Useful to know

```
1 // Lexicon Keys for the "Add" Command
2 commands.add.displayName=Add
3 commands.add.icon=module://icons/x32/add/png
4 commands.add.description=Add a Widget
```

- Niagara Types
- BajaUI/UX Commands
- Slot Names

BFormat Example

```
const format =  
  baja.Format.make('%lexicon(bajai_wb:slotsheet.commands.add.description)%');  
format  
  .format({})  
  .then(function (result) {  
    $('#formatExample').text(result);  
  });
```

//Java - Add a Widget

```
BFormat.make("%lexicon(bajai_wb:slotsheet.commands.add.description)%");
```

Lexicon Tools

Workbench Lexicon Tool

WB Lexicon Tool

con Tool Lexicon Re

Nav My Network

- My Host: UK2ALT23FF2J3.global.ds.honeywell.com (10.10.20.190 (JACE01))

al
ar
be
bg
ca
cs
da
de
el
en
es
et
fi
fr
hi
hr
hu
in
is
it
iw
ja
ko
lt
lv
mk
nl
no

Hide: Ords Accelerators Colors Fonts Types

Module	Module Last Modified	Default Last Modified	Lexicon Last Modified	Missing	Complete
AlarmDBDefect	14-Apr-22 12:29 PM BST	null	null	2	0
CustomCommandSamples	null	null	null	null	null
aaphp	15-Feb-23 6:10 PM GMT	null	null	145	0
aapup	15-Feb-23 6:10 PM GMT	null	null	169	0
abstractMqttDriver	15-Feb-23 6:10 PM GMT	null	null	161	0
ace	15-Feb-23 6:10 PM GMT	null	null	171	0
aceEdge	15-Feb-23 6:10 PM GMT	null	null	11	0
alarm	15-Feb-23 6:10 PM GMT	null	null	521	0
alarmOrion	15-Feb-23 6:10 PM GMT	null	null	48	0
analytics-lib	15-Feb-23 6:10 PM GMT	null	null	0	0
analytics	15-Feb-23 6:10 PM GMT	null	null	438	0
andoverAC256	15-Feb-23 6:10 PM GMT	null	null	119	0
andoverInfinity	15-Feb-23 6:10 PM GMT	null	null	159	0
apachePoi	15-Feb-23 6:10 PM GMT	null	null	0	0
app	15-Feb-23 6:10 PM GMT	null	null	22	0
axvelocity	15-Feb-23 6:10 PM GMT	null	null	25	0
azureUtils	15-Feb-23 6:10 PM GMT	null	null	12	0
backup	15-Feb-23 6:10 PM GMT	null	null	28	0
bacnet	15-Feb-23 6:10 PM GMT	null	null	1454	0
bacnetAws	15-Feb-23 6:10 PM GMT	null	null	162	0
bacnetEDE	15-Feb-23 6:10 PM GMT	null	null	64	0
bacnetMigrator	15-Feb-23 6:10 PM GMT	null	null	10	0

Palette forumCodeExample

- BQLModuleExample
- WebModuleExample
- BajaModuleExample2
- FacetsExample

Lexicon Tools

Differential Summary Tool



Differential Summary Tool

- What is it?
- How do you use it?
- Why use it?

Differential Summary Tool

```
Command Prompt
C:\Users\h490613\Downloads>java -jar LexiconDiffTool.jar C:\Users\h490613\Downloads\Niagara_4_Developer-4.10.5.14.zip C:\Users\h490613\Downloads\Niagara_4_Developer-4.12.2.16.1.zip C:\
Comparing versions from C:\Users\h490613\Downloads\Niagara_4_Developer-4.10.5.14.zip to C:\Users\h490613\Downloads\Niagara_4_Developer-4.12.2.16.1.zip
Processing build image C:\Users\h490613\Downloads\Niagara_4_Developer-4.10.5.14.zip
.
Found Module Include for: aaphp-wb
Found Module Include for: aaphp-rt
Found Module Include for: aapup-wb
Found Module Include for: aapup-rt
Found Module Include for: abstractMqttDriver-wb
Found Module Include for: abstractMqttDriver-rt
Found Module Include for: aceEdge-wb.
Found Module Include for: ace-wb
Found Module Include for: aceEdge-rt
Found Module Include for: ace-rt
Found Module Include for: ace-ux
Found Module Include for: kitControl-ux
```

- 2 Files
 - LexiconDiff.json
 - TypeDiffTool.txt

LexiconDiff.Json File

```
{
  "releaseComparisons": [
    {
      "fromRelease": "Niagara_4_Developer-4.11.2.2-RC.zip",
      "toRelease": "Niagara_4_Developer-4.12.2.8-RC.zip",
      "modules": [
        {
          "moduleName": "aaphp-rt",
          "moduleStatus": "Modified",
          "addedProperties": [
          ],
          "removedProperties": [
          ],
          "modifiedProperties": [
          ]
        },
        {
          "moduleName": "aapup-rt",
          "moduleStatus": "Modified",
          "addedProperties": [
          ],
          "removedProperties": [
          ],
          "modifiedProperties": [
          ]
        },
        {
          "moduleName": "abstractMqttDriver-rt",
          "moduleStatus": "Modified",
          "addedProperties": [
          ]
        }
      ]
    }
  ]
}
```

Summary

- Numbers, Date and Time, and Units are localizable.
- Use Lexicon Module and pass the context around.
- Use `get` when you are sure and `getHtmlSafe` if you are not.
- Facets can be used to set time formats on a slot and it also gives meta data on a slot.

Summary

- Diagnostic Lexicon tool can be used to show parts of your application that is not localized along with any issues with localised text.
- Use BFormat to customize display of slots.
- Use the WB lexicon tool to add/edit/override lexicon keys.
- Use the Differential Summary Tool to find differences between 2 different Niagara installation lexicons and modules.

Any Questions?



Tell me joke on Tridium Niagara Lexicon localization

< 9/9 >



Sure, here's a joke for you:



Why did the Tridium Niagara developer get lost in the Niagara Lexicon localization?

Because they thought "localization" referred to a nearby pub, and ended up at the wrong place!

Thank You.

Q&A Session at 5PM

Please Email: supportemea@tridium.com

Subject: Dev Day



Next Up!

Mike James: Station and Platform Debugging