

Niagara *Internationalization*

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Overview

- **Internationalization (I18n)**
 - Create software for the global market.
- **Localization (L10n)**
 - Adapt i18n for a specific region or language.
 - Achieve *L10n* - translate text, apply units, number formats and so on.

Demo

```
class DialogDemo {  
  show() {  
    const city = 'Charlotte';  
    return feDialogs.showFor({  
      title: MY_LEX.get({ key: 'dialog.title', args: [city] }),  
      type: InfoWidget, value: city  
    });  
  }  
}  
  
new DialogDemo().show();
```

Run



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Basics of Localization with Niagara

What can be localized in Niagara?

- Lexicon
- Numbers
- Date and Time
- Units

- Lexicon

hello=Hello

नमस्ते

hello=\u0928\u092e\u0938\u094d\u0924\u0947

hello=Bonjour

- Numbers

1.000,00 (*de*)

1'000.00 (*de-CH*)

- Date and Time

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

```
4/4/22 3:30:00 PM EDT
```

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

```
04-Apr-22 15:30:00 EDT
```

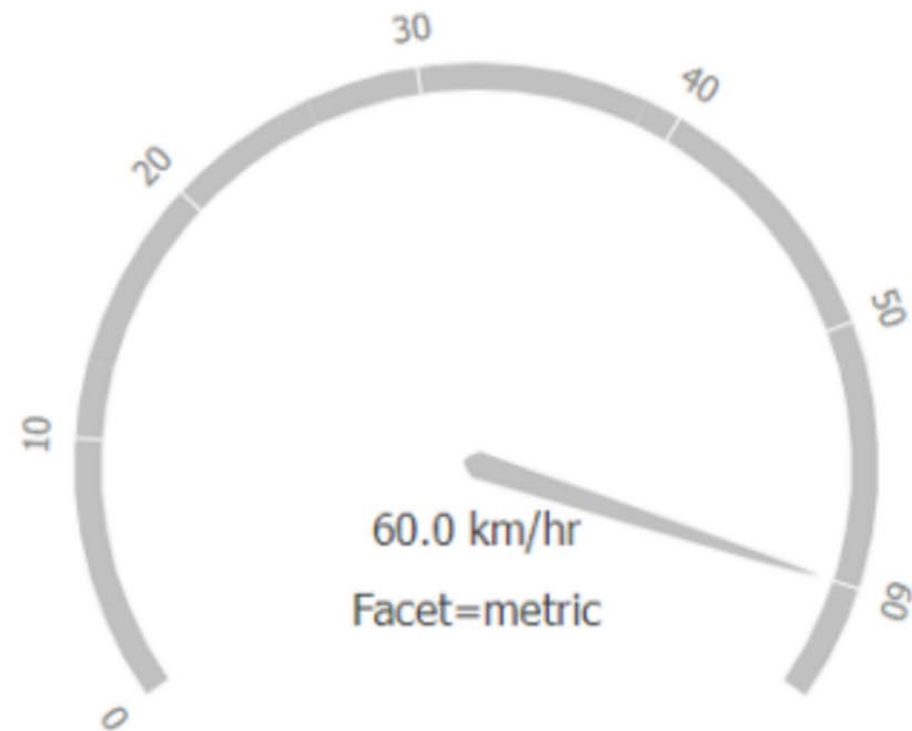
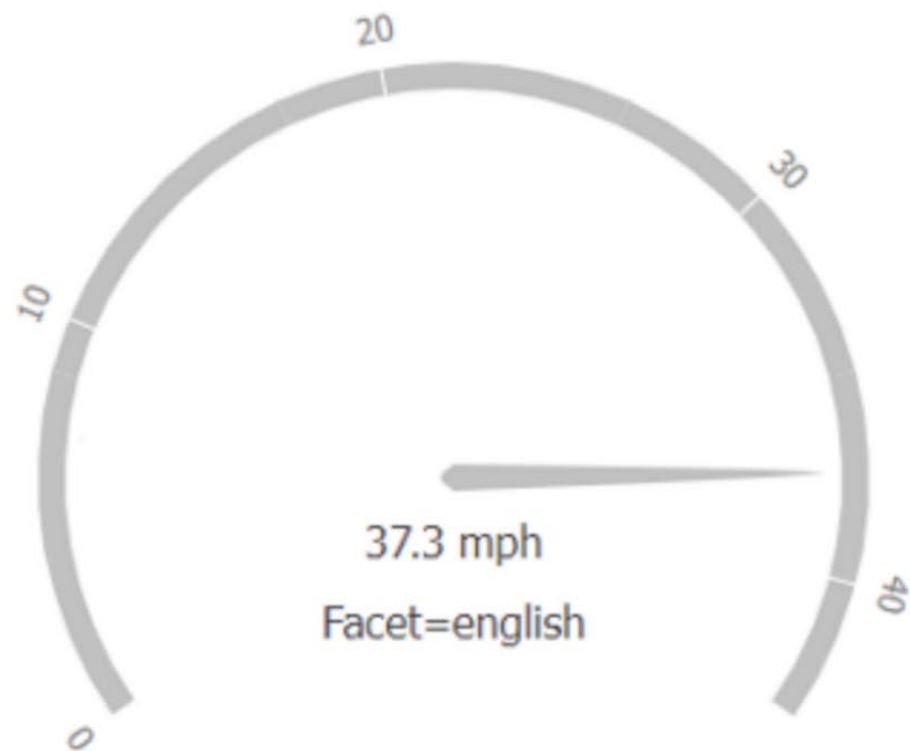
- Units - defaults to 'None', but 'Metric', 'US/English' are available.

```
<convert metric="celsius" english="fahrenheit"/>
```

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

Outside (user=metric)

25.0 °C



Where to set these options?

- Workbench -> Options -> General
 - Will also set the "niagara.lang" system property
- Config -> UserService -> User
- Sets language, time format and unit
- niagaraLexiconDe.jar's baja.lexicon

```
timeFormat=D.MMM YYYY HH\:mm\:ss z
```



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For the developer

Java

```
// For this lexicon entry in the alarm module
// hx.notes.multiple=<Multiple Alarms>;
Context cx = new BasicContext(user, "de")
LexiconModule lex = LexiconModule.make("alarm");
lex.getText("hx.notes.multiple", cx); // <Mehere Alarme>;
lex.getHtmlSafeText("hx.notes.multiple", cx); // &lt;Mehere
Alarme&gt;;
```

A note about LexiconModule

- Fixes some of the shortcomings of legacy Lexicon
- Efficient, reliable and multilingual
- Recommended because you **must** pass the context with every call

Javascript

```
require(["lex!alarm"], function (lexs) {  
  const [ ALARM_LEX ] = lexs,  
    LEX_KEY = "hx.notes.multiple";  
  console.log("Not safe: ", ALARM_LEX.get(LEX_KEY));  
  console.log("Safe: ", ALARM_LEX.getSafe(LEX_KEY));  
});
```

Run

Better *safe* than sorry!

```
// Specified as display facets
myComponent.setFacets(myTimeSlot, BFacets.make("timeFormat",
"YYYY")) // 2022

// Set control point facets
point.setFacets(originalFacets,
BFacets.make(BFacets.UNIT_CONVERSION, BUnitConversion.METRIC));
```

Additional formatting via Facets

<code>BFacets.SHOW_TIME=false;</code>	<code>4/4/22</code>
<code>BFacets.SHOW_DATE=false;</code>	<code>15:30:00 EDT</code>
<code>BFacets.SHOW_MILLISECONDS=true;</code>	<code>15:30:00.123 EDT</code>
<code>BFacets.SHOW_TIME_ZONE=false;</code>	<code>04-4-22 3:30:00 PM</code>



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Diagnostic Lexicon

```
#System.properties
```

```
niagara.lexicon.diagnostics=true
```

```
niagara.lexicon.diagnostics.prefix=~~
```

mmxxii

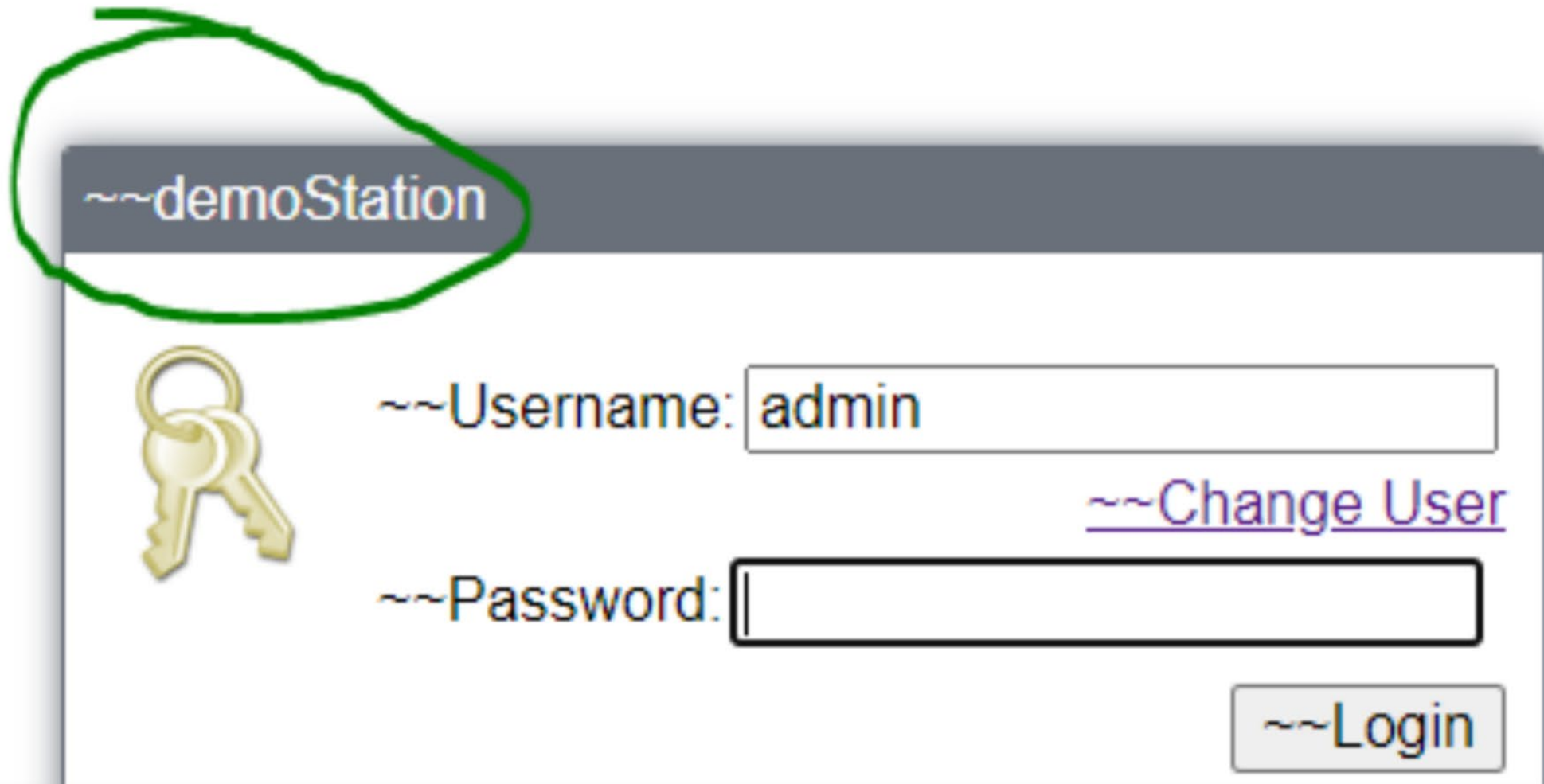


~~Username:

[~~Change User](#)

~~Password:


```
# Set the station's display name
Sys.getStation().add("displayName",
BFormat.make("%lexicon(slides:station.displayName)%"));
```



The screenshot shows a login interface. At the top, the title 'demoStation' is displayed in a dark grey bar and is circled in green. Below the title, there is a gold key icon. To the right of the icon, the text '~~Username:' is followed by a text input field containing the word 'admin'. To the right of this field is a blue link labeled '~~Change User'. Below the username field, the text '~~Password:' is followed by a password input field. At the bottom right of the form is a button labeled '~~Login'.

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

```
slides-en-station.displayName=demoStation
```



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](#)

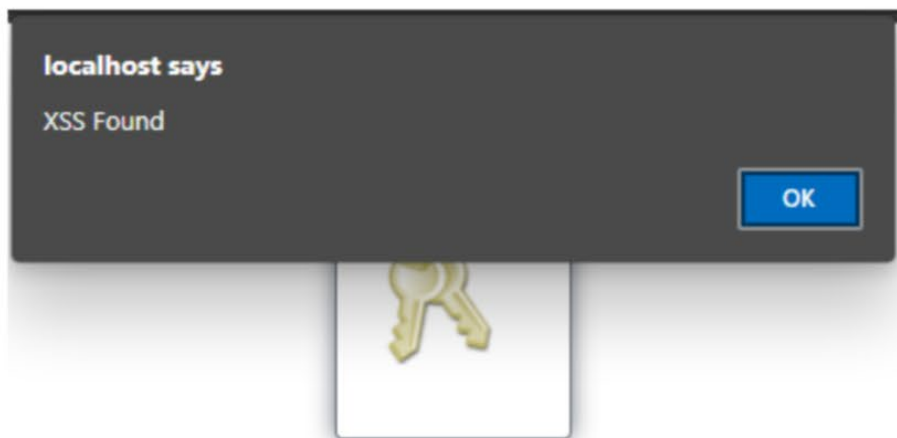
web-en-login.eula.licenseExpirationDate=Your license expires on 05-baja-en-september.short=Sep-29.

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

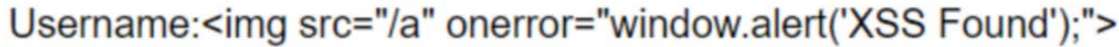
A note about XSS


- Escape the untrusted (call `js#getSafe` or `java#getHtmlSafe`)
- dialogs *text* is safe by default -
`dialogs.show("runSomeMaliciousScript()")` is safe
- Use diagnostic lexicon to uncover issues

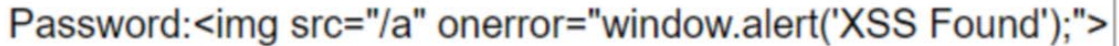
```
niagara.lexicon.diagnostics.suffix=&lt;img src="/a"  
onerror="window.alert('XSS Found');">
```

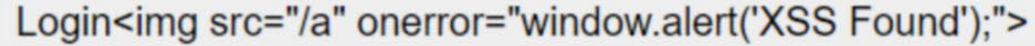


~~lex.get("login.username")~~

Username: 

[Change User](#) 

Password: 



lex.getHtmlSafe("login.username")

Good to know

```
// Lexicon keys for the "Add" Command  
// commands.add.displayName=Add  
// commands.add.icon=module://icons/x32/add.png  
// commands.add.description=Add a Widget
```

- Niagara Types
- BajaUI/UX Commands
- Slot names

```
// Bajau Command
```

```
new Command(widget, Lexicon.make("slides"), "commands.add");
```

```
fe.buildFor({  
  dom: $("#cmdExample"),  
  type: CommandButton,  
  value: new Command({  
    module: 'slides',  
    lex: 'commands.add',  
    func: function () { console.log('Add something!'); }  
  })  
});
```

Run

BFormat example

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

Run

```
// JAVA  
BFormat.make( "%lexicon(slides:commands.add.description)%" ); // Add a  
Widget
```

Workbench Lexicon Tool

Lexicon Editor Help

Lexicon: Module: Hide: Ords Accelerators Colors Fonts Types Show Only: Missing Completed

Search On: Search Text:

Key	Default
<input type="radio"/> AbsTime.ambigWallTime	Ambiguous time "{0}", specify TIME_MODE_DAYLIGHT or TIME_MODE_STANDARD
<input type="radio"/> AbsTime.invalidWallTime	Ungültige Zeit "{0}"
<input type="radio"/> AbsTime.unsupportedTimeZone	AbsTime cannot use time zone "{0}"
<input type="radio"/> AuthenticationException	Anmeldung fehlgeschlagen.
<input type="radio"/> CannotMoveFrozen	Cannot move frozen property "{0}".
<input type="radio"/> CannotMoveSimples	Cannot move a BSimple value.
<input type="radio"/> CannotMoveUnderSelf	Cannot move under self.
<input type="radio"/> DuplicateRestrictedComponent	Illegal duplicate instance of type "{1}" detected in the station. \nType "{1}" is restricted to one instance of its type allowed in the station.
<input type="radio"/> DuplicateSlotException.slot	Slot "{0}" existiert bereits.
<input type="radio"/> FileLockException	Die Datei wird von einem anderen Prozess verwendet: \n{0}
<input type="radio"/> IllegalChildException.parentAndChild	Ungültige untergeordnete Komponente "{1}" für "{0}"
<input type="radio"/> IllegalNameException.name	Ungültiger Name "{0}"
<input type="radio"/> IllegalParentException.parentAndChild	Ungültige übergeordnete Komponente "{0}" für "{1}"
<input type="radio"/> LoggingService	DebugService
<input type="radio"/> NonSuperUserUnresolvedSpyOrdException	Um eine SPY-Seite aufzurufen müssen Sie Super User Rechte haben.
<input type="radio"/> NotFileC...	Must be a "file" CD. {0}

Lexicon Diffs

```
// Will be made available via Niagara Community knowledge articles
"releaseComparisons": [{
  "fromRelease": "Niagara_4_Developer-4.11.1.16.zip",
  "toRelease": "Niagara_4_Developer-4.12.0.90-RC.zip",
  "modules": [{
    "moduleName": "gx-ux",
    "moduleStatus": "Modified",
    "addedProperties": [{ "propertyKey":
"colorChooser.alphaText", "propertyValue": "Alpha" }],
    "removedProperties": [],
    "modifiedProperties": []
  }]
}]
```

Workbench -> Help Documents -> Developer Guide -> Localization

```
feDialogs.showFor({  
  title: MY_LEX.get('baja-lb-thankYou'),  
  type: Crawl,  
  value: {  
    module: 'slides',  
    lex: 'thankYou'  
  }  
});
```

Run