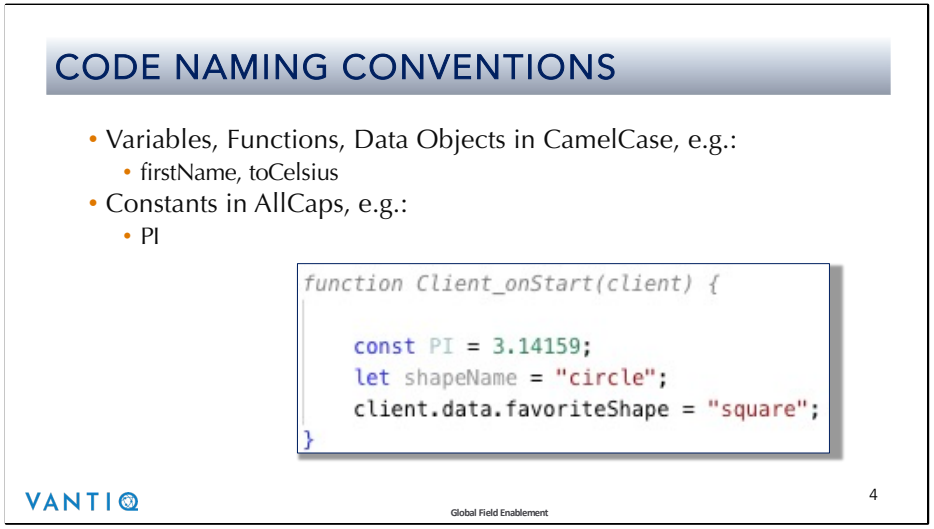

VANTIQ ACADEMY
CLIENT CODING STANDARDS
WWW.VANTIQ.COM
Vantiq Procedures Elective Class

TOPIC OBJECTIVES

- To Learn Best Practice Coding Standards in the Client

AGENDA

- Naming Conventions
- Code Readability Conventions
- Variables
- JS Code Habits
- Client & Page Code
- Widgets
- Widget Changes
- Localization
- Security Standards



Make functions and variables in Camel Case, and constant in all-caps; that consistency lends itself to making code easy to read.

CODE READABILITY CONVENTIONS

- Comment block at the top between "/*" and "*/"
- In-line comments:
  - Same line to explain variables
  - At top of code block
- Use spaces between operators
- Open bracket sections
  - First left bracket one space in-line
  - "`} else {`" spacing
  - Last bracket on own line
- Indents: 4 spaces or 1 tab
- Declare variables at top of scoping block

```
/* onStart function:
First establishes the constants and variables
that will be used by the Start page, sets certain
display widget values with them.
*/

    const PI = 3.14159;  //To five places is accurate enough
    let shapeName = "circle";
    let counterArray = [];

    // Populate our array
    for (let i = 0; i < 5; i ++) {
        counterArray.push(i);
    }

}
```

VANTIQ

Global Field Enablement

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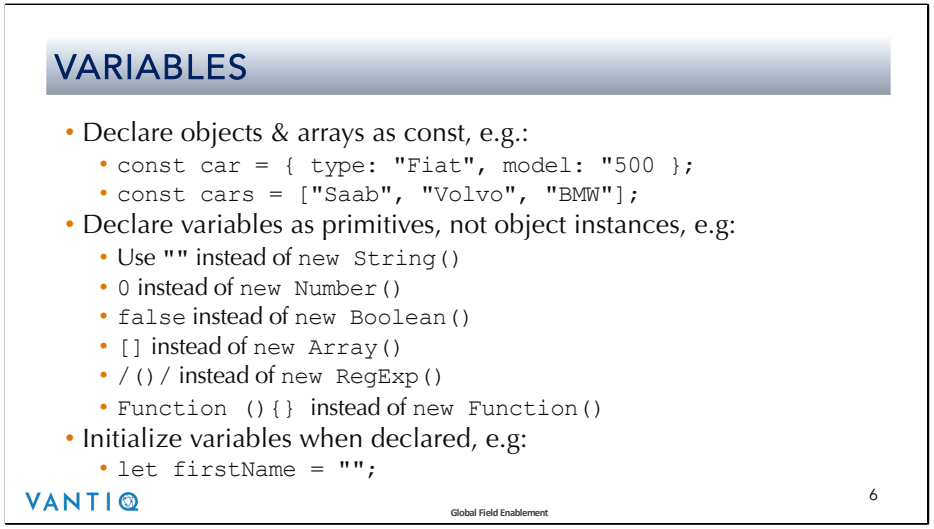
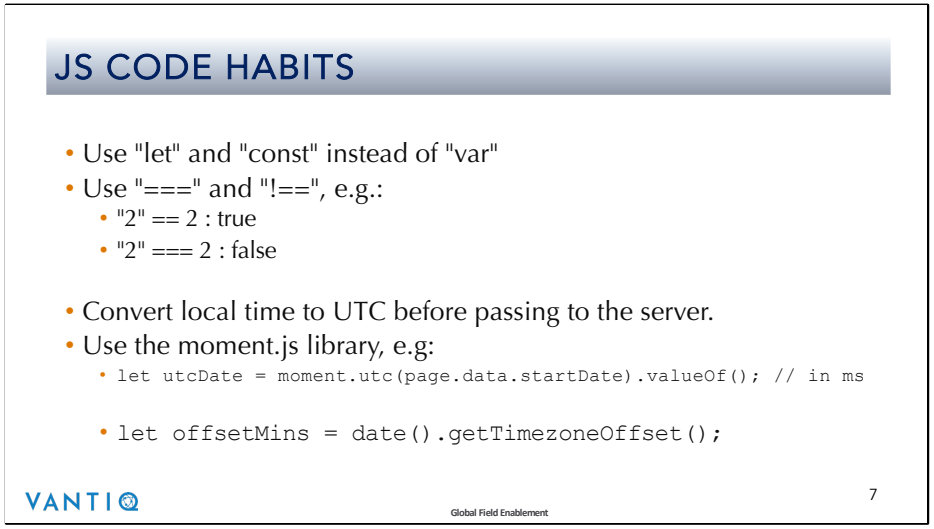
The other conventions Vantiq recommends for code readability are habits most developers have already adopted.



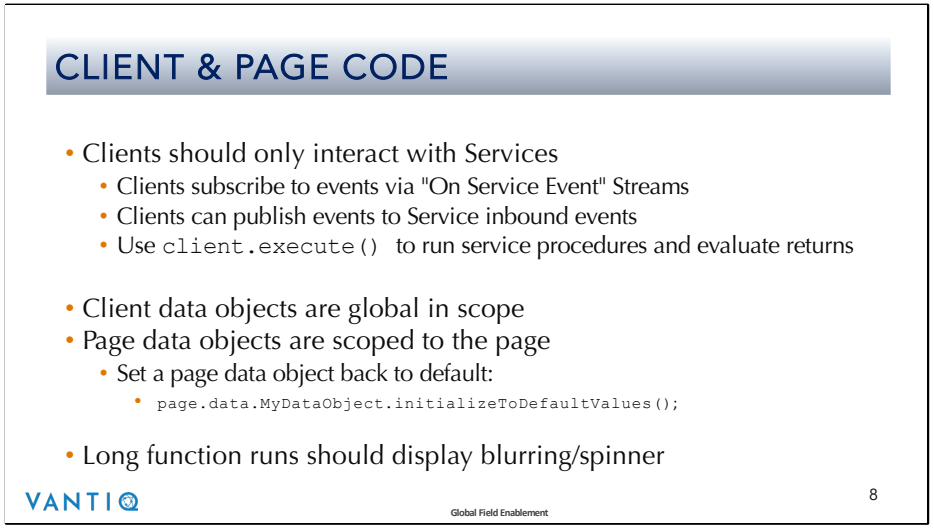
By declaring objects and arrays as const, the elements can still be changed, but the type remains enforced. Also, keeping variables as primitives prevents object-primitive mismatches in code elsewhere. Finally, give all newly declared variables an initial value, even it it's only an empty string, zero, or empty brackets, so readers know the expected type at a glance.



In JavaScript, using "let" and "const" is more precise than using "var." And, speaking of precision, a triple equals sign matches values exactly, with no implicit conversions, so it's preferable to use.

Now let's talk about how to handle date and time in Client code. The Vantiq server always runs in Greenwich Mean Time, also known as Universal Time Code, or UTC. The Client is running in your local time zone. You'll need to set local times to UTC before sending it them to

the Server, and Vantiq supplies the moment.js library to make time conversions easy.

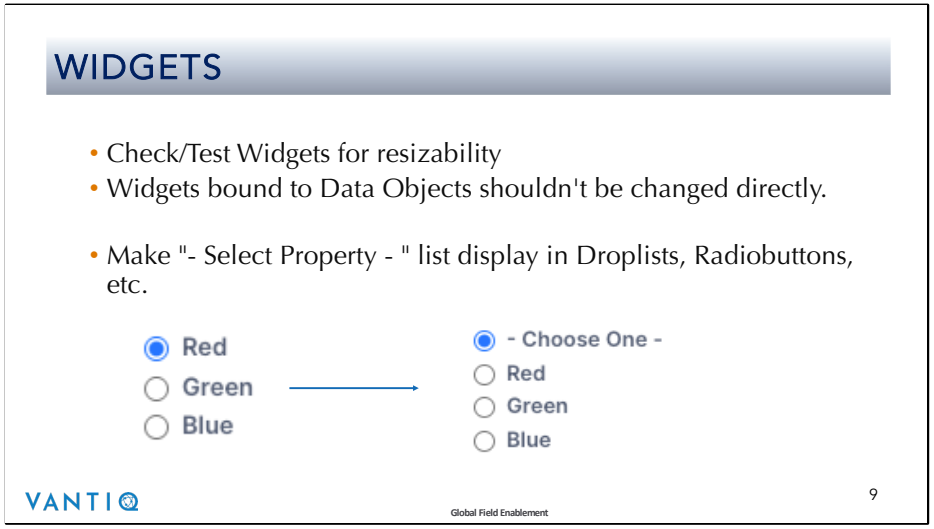


It is best practice for Clients to only interact with Services, by subscribing or publishing to service events, or executing service procedures. This ensures that Services manage Vantiq server resource, such as sources, types, etc.

Services also manage server state, but Clients manage their own state through data objects. Data objects can be at the client level, accessible from anywhere in the Client, or at the page level, which

remains for just that page. If a user switches from one page to another and then back, the original page will still have the state from before. If the developer wants a clean slate every time the page reappears, set the page objects back to their default values in the onPageStart code.

To avoid confusing your users when the client display is delayed due to a long-running onStart or other function, blur the page and add an animated spinner. There are multiple ways to do this. The Vantiq Client Builder Development Standards Guide details an example.

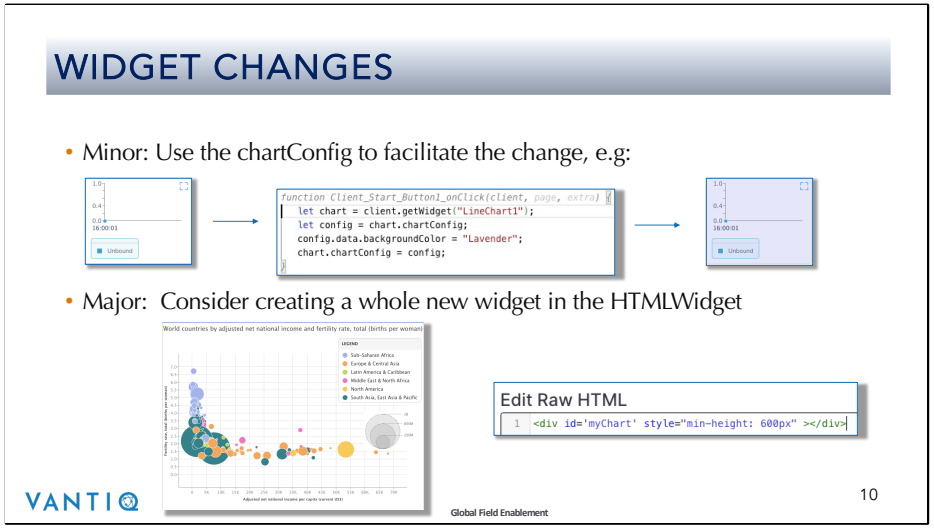


Now let's talk about the best ways to work with client widgets.

First, consider the media where they will be displayed. If your application will be on both browser windows and mobile devices, you probably don't want to use too many datatables, because they don't resize well. Check your displays everywhere they'll be used, early and often.

Next, Many widgets can be set to dynamically display data by binding to values from a DataObject. In such cases, your code should make changes to that DataObject to change the widget display, and not change the display directly.

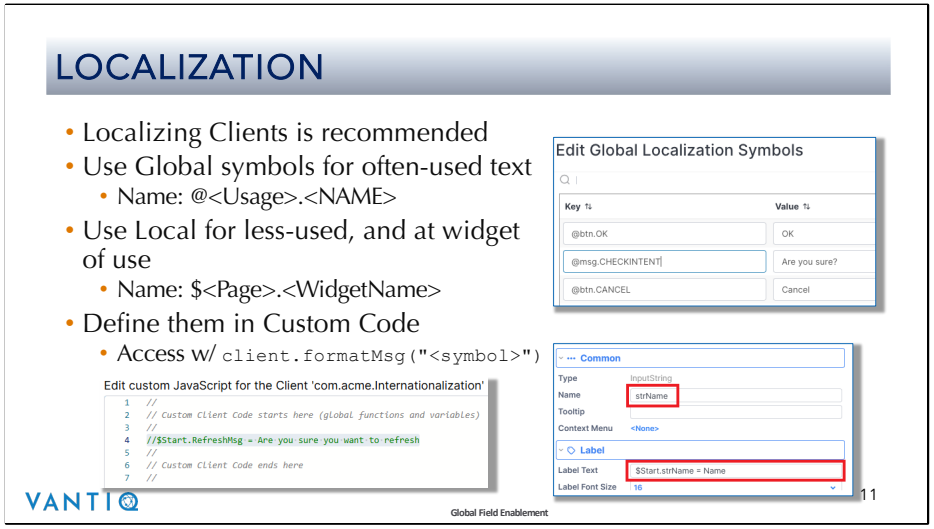
Finally, Unless a developer builds a "non-option," a couple of data input widgets will show pre-selected values, like the radioButton shown. Be sure to make the default value a non-choice, so the user knows to make a selection.



The Vantiq Client widgets are for the most part renderings of ZingChart widgets. If you want to change the look and feel of a widget and the option isn't available in the configuration panel, but is a zing chart property, then change it in the widget's chartConfig, like in the example shown.

But if you want a very different widget, use the HTMLWIdget to display it. Reference the widget inside a html in the html

widget, then add the code and css elsewhere.

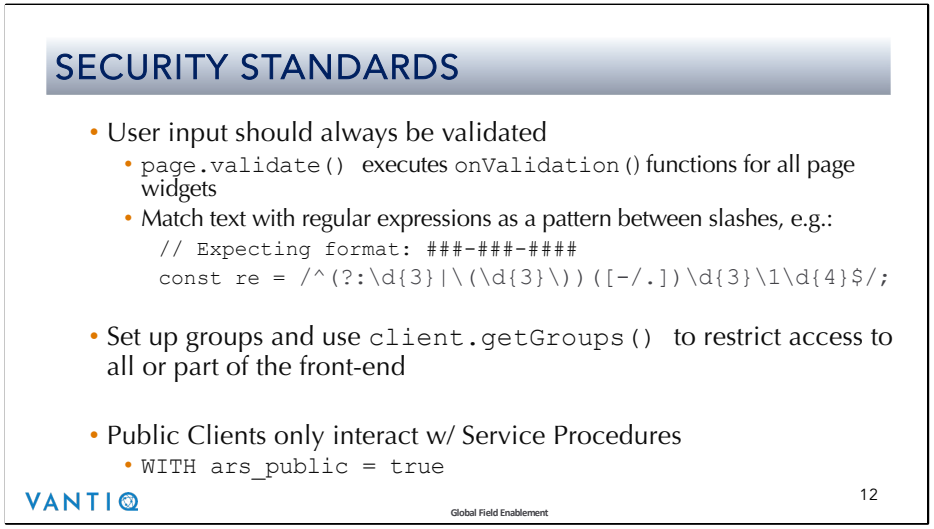


Localization allows users to change the wording on their Client pages to other languages, even alert messages. For text strings that will be used over and over across multiple pages, like "Submit" labels on buttons, make them into global symbols by entering them in the Localization tab of the Client configuration page.

More local symbols are denoted with dollar signs before the name, and set equal to the default language value.

From the Client localization tab, developers can download a list of all of the values for translating, then uploading into the Client again for use.

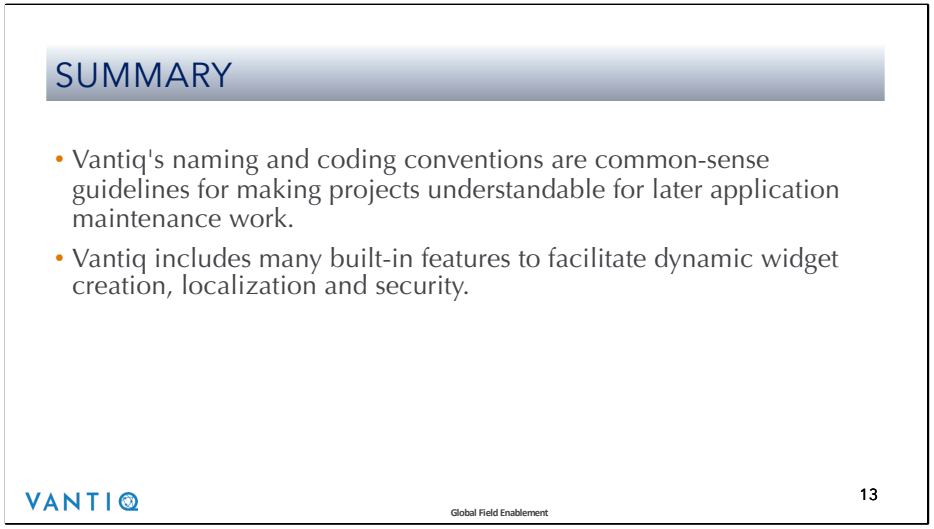
Even if you have no immediate plans to internationalize your client project, it's not much more effort to create a local symbol for the text of a widget and set it to your current language. Your Client will then be configured for future translation.



There are a few front-end security features in the Client, to which developers should avail themselves. Validation is not just helpful for data integrity, but also to prevent code injection attacks. Widget input can be checked singularly by executing their onValidation() functions, or call all of them for a page with the page.validate() function. The function will return "true" if all widgets validated successfully.

Whole clients, or parts of clients can be restricted to specific Vantiq platform groups.

Public Clients are for users who don't have Vantiq logins. Any documents, including images have to be designated as public in order to appear in Public Clients. The Client code can only access back-end resources through public Service procedures, so security is ensured.



Most developers are following the basic coding standards already. Take advantage of Vantiq's Client tools to accomplish everything a user interface can do.

KEY URLS/RESOURCES

- Client Builder User's Guide
  - https://dev.vantiq.com/docs/system/cbuser/
- Client Builder Reference Guide
  - https://dev.vantiq.com/docs/system/cbref/
- Layout Management User's Guide
  - https://dev.vantiq.com/docs/system/layout/
- Client Styling User's Guide
  - https://dev.vantiq.com/docs/system/cbstyling/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