#### NOKIA Developer

# Mobilising websites: building a WRT widget for the Nokia Developer website

This article describes the design and development process used to mobilise the Nokia Developer Community website as a Symbian Web Runtime widget.

## Step 1. Choosing sections

The Nokia Developer website offers many sections and sub-sections, with rich information covering all the aspects of 2009 mobile development. All this information is highly valuable in a standard website, since it allows users to easily find answers to all mobile-related questions and doubts. However, a mobile device represents a different environment, where users want to access information in a different way, and for different purposes:

- users want to quickly reach information, with very few interactions
- they want to easily read information, without the need to identify relevant content in a overly-populated interface
- also, not all content is suited for mobile users and devices, since too-rich or complex information is:
  - not easily representable on small displays
  - not of interest for users in mobility

For this reasons, the following sections are chosen for the mobile version of the Nokia Developer Community:

- the Discussion Boards: the discussion boards contains guite only textual data, and so are easily adaptable to mobile displays, without the need to create complex interfaces
- the Blogs: blogs are easily readable from users in mobility, since do not require high attention or concentration, and are also easily adaptable to small displays
- the Events: events, visible on Nokia Developer homepage, are few items with a short descriptive text

## Step 2. Designing the user interface

### The style

The Nokia Developer website has a well-known and established look-and-feel, consisting of clear colors (mainly blue and greenbased) and a polite interface. When mobilizing a website, it is highly recommended to follow the style guidelines of the original website, so the Nokia Developer widget presented here will use the same style and colors of the Nokia Developer website.

### Representing the sections

The widget has 3 types of content: blogs, boards and events.

- The first two, blogs and boards, are typically composed by longer textual information, structured in a descriptive title and a full HTML description, possibly containing images and other media. So, for blogs and boards it has sense to use a master-detail pattern, where the master view shows a list of titles, and the detail view shows the detail of the chosen item.
- Events, instead, are typically represented by simpler and shorter texts than the other two sections. So, in order also to create a more dynamic user interface, events will be represented by a news ticker positioned just below the widget's header, and will be always visible. So, the component shown in this Nokia Developer Wiki article can be used: News Ticker JavaScript component for Web Runtime.

## First interface draft

The first user interface draft is represented by the following picture.





Header

Events ticker

Main content (boards, blogs)

It has three main elements:

- a top header, containing the widget's logo and title
- a news ticker, showing the events' information
- a main view, where blogs and boards content is displayed

### Showing clear information

Users in mobility need clear and easily readable information. This means several things:

- colors must be carefully chosen, in order to have clearly readable text, with optimal contrast
- font size must not be too small. In order to take into account users with different visual needs, resizable fonts are an optimal choice. The approach described in this article is so used: How to dynamically change font size in Web Runtime widgets

In order to allow users to freely change the font size, a Settings view is added to the widget, that can potentially be used for other relevant actions and settings.

#### **Different screens and input methods**

Touch-enabled devices also have larger displays to represent the widget's information. For these reasons, it makes sense to design two slightly different interfaces depending on the user device:

- on touch-enabled devices, softkey option items can be replaced by buttons placed within the widget's interface
- on non touch-enabled devices, classical softkey items are used, in order to save space for the widget's main content

The layout will so be structured as described in this Nokia Developer Wiki article: How to build a Web Runtime layout with Header and Buttons Bar

The buttons' bar will contain 3 buttons, allowing users to switch between the main views of the widget:

- a button for the Blogs section
- a button for the Discussion Boards section
- a button for the Settings view

#### **Final layout draft**

The following pictures show the final widget's user interface drafts, both for small and large/touch-enabled displays: Layout for small displays

Header			
Events ticker			
Main content (boards, blogs, settings) Softlæy Items			
Layout for large displays			
Header Exit			
Events ticker			
<b>Main content</b> (boards, blogs, settings)			
Main Buttons			

## Step 3. Retrieving information from network

The three widget's sections have RSS feeds that allow mobile applications to easily access their content. These feeds are so used to dynamically retrieve the information with Ajax network requests.

## Updating the information

Information changes, and so needs to be refreshed within the widget itself. In this case there are typically two choices:

- use a "refresh/update" button to allow users to refresh the content of a view
- implement an auto-refresh mechanism that periodically retrieves and shows the updated information

The last approach is, from a usability point of view, the best one, since allow users to have updated information without requiring any extra steps or user interactions. In order to allow the user to have control over the auto-refresh functionality, an option is added to the Settings screen, allowing users to change the refresh interval.

## Step 4. Showing the information

Now that layout structure is ready, and information can be easily retrieved with Ajax calls, next step is to actually show the information to the user. The following screenshots show the blogs and discussion boards screenshots, of the touch-enabled version of the widget:

Views of Blogs section

Forum. Nokia.com Driving mobile innovation	EXIT	Forum.Nokia.com	EXIT	
orld 09: In an ever-changin	ig and c	e marketplace, Nokia v	velcomes	
Latest from Blogs	5	Latest from B	ogs	
Adobe Device Central CS3 Profile update #9		Back to Blog	gs	
Big Game Huntr		Open in Web Browser		
SBGames 2009 at PUC-Rio (Brazil)		Big Game Huntr		
Forum Nokia Podcasts: Episode 002 - Open Screen Project Fund		We had good news from the <u>flash Developer Challenge</u> vesterday as our new location based game Big Game Huntr took the innovation prize out of 150 entries worldwide. I am particularly pleased to get the innovation prize as I believe the game represents a new generation		
Nokia E72: Can we do bet	ter?	of mobile gaming designed specifically for the medium and harnessing player creativity in an exciting new direction. I would also acknowledge the hard work of the		
Maemo development seri the easy way to configure development environmer	es: e your ht	two students involved Mark Lochrie and I getting it to this point. We are hoping to e testing soon and I look forward to offerin community here as first testers.	(ate Lund in inter Open Beta ng it to the	
An alternative approach t Web Buntime widgets' ut Blogs Boards Mor	to odate re	It's nor just any old gam It's your GANE Blogs Boards	* More	
Views of Discussion Boa	rds sectio	n		
Forum Nokia.com Driving mobile innovation	EXIT	Forum.Nokia.com Driving mobile innovation	EXIT	
a welcomes you to take p	art in ar	s you to take part in ar	event that	
Latest from DiBo	s	Latest from Di	Bos	
Panic E32USER-CBase 46 v using Active Objects	while	Back to DiB	0	
Disable the form field		Open in Web Bro	owser	
Huge sis file from small P script	ython	Panic E32USER-CBase	46 while	
Selection list with two lin strings	ne	Hi, I have used Active C	)bjects	
Help! Multi thread proble	ems	am implementing my	own	

et the innovation ew generation r the medium liting new hard work of the late Lund in nter Open Beta ig it to the Ma. lore EXIT event that Bos wser 6 while bjects rst time own Service provider. The code for oginActiveObject is :- Code: ----- loginService = CLoginService::NewL(); oginService->LoginL(iStatus); etActive(); h 100 More Blogs Boards

In order to allow a better visualization of the retrieved RSS data, some extra handling of this data is performed:

- images are dynamically resized according to the display width
- Iinks are modified, in order to use the widget.openURL() function, so to open them in the S60 web browser
- embedded objects are removed

Boards

## Step 5. Managing user settings

h

More

The settings view contains controls that allow users to manage the following settings:

the font size

IMEI number

6

Blogs

the auto-refresh interval 

The final layout of the settings view is shown by the following image:

Forum.Nokia.com Driving mobile innovation				
ke part in an event that will shape				
Font Size				
Small				
Medium				
Large				
Auto Refresh				
3 minutes				
5 minutes				
10 minutes				
30 minutes				
60 minutes				
Blogs Boards <mark>More</mark>				

Since settings must be kept between different usage sessions, the widget setPreferenceForKey() and preferenceForKey() methods are used.

## Step 6. Widget's update mechanism

Widgets, as any other mobile applications, could need to be updated in order to fix bugs, add features or simply do some code changes. In order to allow the Nokia Developer widget to be updated, two different techniques are used:

- a standard check and update mechanism, as described here: How-to create self-updating WRT widgets. With this approach, a
  new widget, if available, is downloaded and installed over the old version.
- an alternative code-update technique, described here: How to update WRT widgets without installing a new version. This
  technique allows to update the widget's code without requiring a new version to be downloaded over the old one, so
  improving the widget's usability and reducing network traffic.

#### Adding the about/update view

In order to allow the user to check for updates, another view is added to the widget. Since this view is not strictly related to widget's content, the button to access it, on touchscreen devices, is placed in the widget's header, on the right side of the Nokia Developer logo. The about screen is visible in the following screenshot:



## Step 7. Usability refinements

Now that the main widget's graphics and layout are ready, some refinements can be done in order to improve the overall usability.

### Adding tactile feedback

Tactile feedback allows to improve the user feelings about the interface responsiveness, by giving him immediate feedback about user interactions. In order to add tactile feedback to this widget, the following declarative approach is used: How to declaratively add tactile feedback in WRT widgets

### **Optimizing spaces for small displays**

The screenshots view in the previous sections show the widget running on touchscreen devices, with 360x640 resolution. In order to optimize spaces on devices with smaller displays, some elements can be adjusted and resized. The screenshots below show the various widget's views running in a 240x320 display:

Forum.Nokia.com Adobe MAX 2009: Come to Adobe	Forum.Nokia.com	Forum. <b>Nokia</b> .com deas and build relationships with			
Latest from Blogs	Latest from Blogs	Font Size			
Adobe Device Central CS3 Profile undate #9	Back to Blogs	Small			
Rig Game Huntr	Big Game Huntr	Medium			
	We had good news from the Flash Developer Challenge vesterday as	Large			
(Brazil)	our new location based game Big Game Huntr took the innovation prize	Auto Refresh			
Forum Nokia Podcasts:	particularly pleased to get the	3 minutes			
Project Fund	game represents a new generation	5 minutes			
Definer Di	specifically for the medium and	10 minutor			
Forum.Nokia.com Forum.Nokia.com Forum.Nokia.com to Adobe MAX to exchange ideas ionships with leading designers a with leading designers and deve					
Latest from DiBos	Latest from DiBos	Info			
Avoid Canceling my J2ME	Back to DiBo	Forum Nokia v0.1 Developed by:			
How can i deploy file with	Avoid Canceling my J2ME	🕘 JAPPIT.COM			
different name?	Program Hello again, we want to make	Check for updates			
[Problem] Dialog resource	a survey. For this we made a i2me application which should	To check for newer versions of the Forum Nokia widget, you can			
nom other project	be installed on several nokia	use the button below.			
Bluetooth connection, how?	mobiles which we want to	Charlenow			
	give out to the participants.	CHECK HOW			

## Step 8. Create an icon

Before releasing the widget, an icon must be created, in order to identify the widget within the phone menu. An example icon (a 88x88 PNG image) is visible below:



## Step 9. Deploy!

All is ready, so what remains to do is to do a lot of testing, on both touch enabled and non-touch enabled devices, to see if all works well.

## Further development

Many adjustments and improvements are possible to the presented widget. Examples include:

- allowing the user to choose the discussion boards of interests, so filtering the RSS feed depending on his preferences
- adding a home screen version of the widget, that displays latest RSS data on the device home screen

## Downloads

The Nokia Developer widget developed for this article is available for download here: Media:ForumNokiaWidget.zip

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