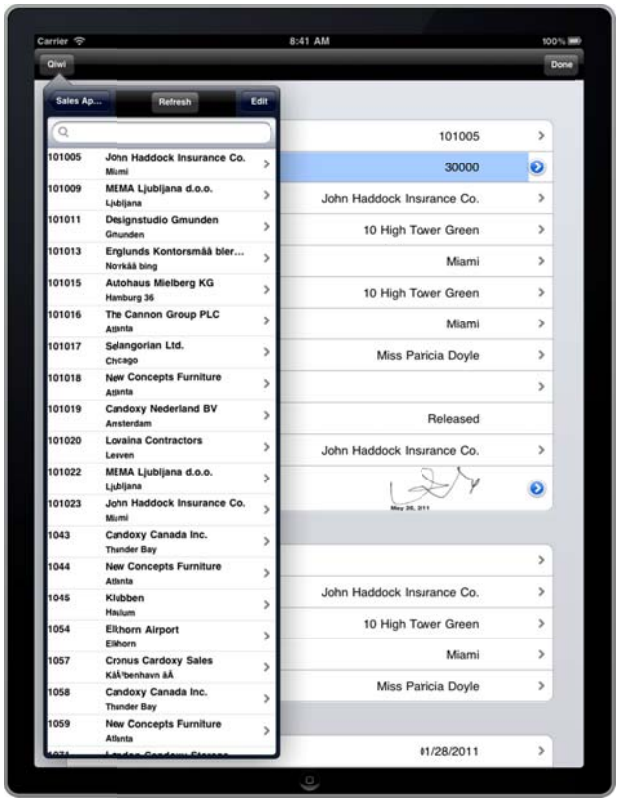
Qiwi Application Whitepaper

Version 2.01 by Carsten Howitz, May 25, 2011

Overview

Qiwi is a mobile application that allows you to take Microsoft Dynamics NAV on the go. Qiwi features a thin client running on iPad, iPhone and iPod Touch.

Qiwi will work with Microsoft Dynamics NAV 2009 SP1 and later. Qiwi utilizes the Web Service middle tier of Dynamics NAV.



The application that runs on the mobile device is entirely defined inside Dynamics NAV thus requires no development to set up. All tables and fields inside Dynamics NAV are accessible to Qiwi and depend only of the actual set up of the applications. Qiwi will allow command button execution of code inside Dynamics NAV as needed for the applications. Qiwi also allows capturing electronic signatures and storing them back to Dynamics NAV.

Qiwi utilizes Windows Authentication to ensure the users only have access to the data they are supposed to access.

Qiwi allows online and offline access to the areas of Dynamics NAV that your applications allow the user to access.

The client is a 100% thin client, thus no actual NAV application code run on the mobile device. The application is simply a data review/entry application with synchronization to the backend. All validation and running of code happens on the back end.

Examples of use of a Qiwi application:

1. Sales Quote/Order Entry
2. Customer and customer balance information
3. Inventory availability per location
4. Service Order Entry
5. Time Entry for Jobs or Payroll
6. Etc.

The system is extremely flexible. There are no set applications. You can define your own applications using Dynamics NAV. This enables you to do applications that can cross from one area to another.

Client Support

Qiwi mobile is available in two versions:

- Qiwi XL for use on iPhones and iPad Touch
- Qiwi HD for use on iPads

No other clients are supported. Both clients are available on the Apple AppStore.

Once the App is downloaded the connection info needs to be completed and the App is ready to work.

Web Service Support

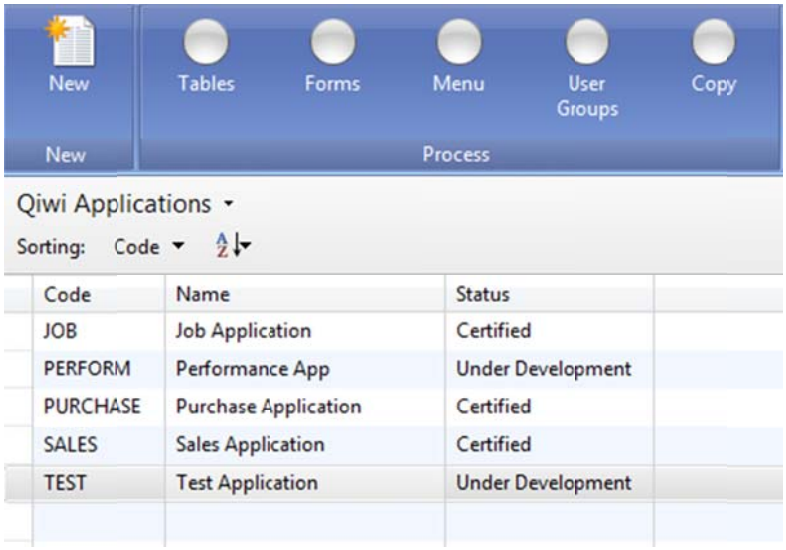
Qiwi is utilizes Dynamics NAV's native Web Service support and NTLM security available in Dynamics NAV version 2009 SP1 and higher. Here is an example of the setup needed to connect to the Dynamics NAV Web Service.

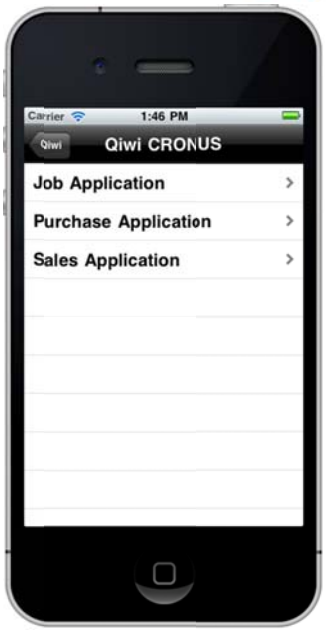
Application setup in Dynamics NAV

All applications that run on the mobile device are setup entirely inside Dynamics NAV. There is no deployment on the iPhone/iPad other than downloading the App from the AppStore.

Each application is set up with tables and fields from Dynamics NAV and you will then build forms as easy as entering data into a table.

Here is an example of setting up the applications inside Dynamics NAV and how it would look for the user on the iPhone.



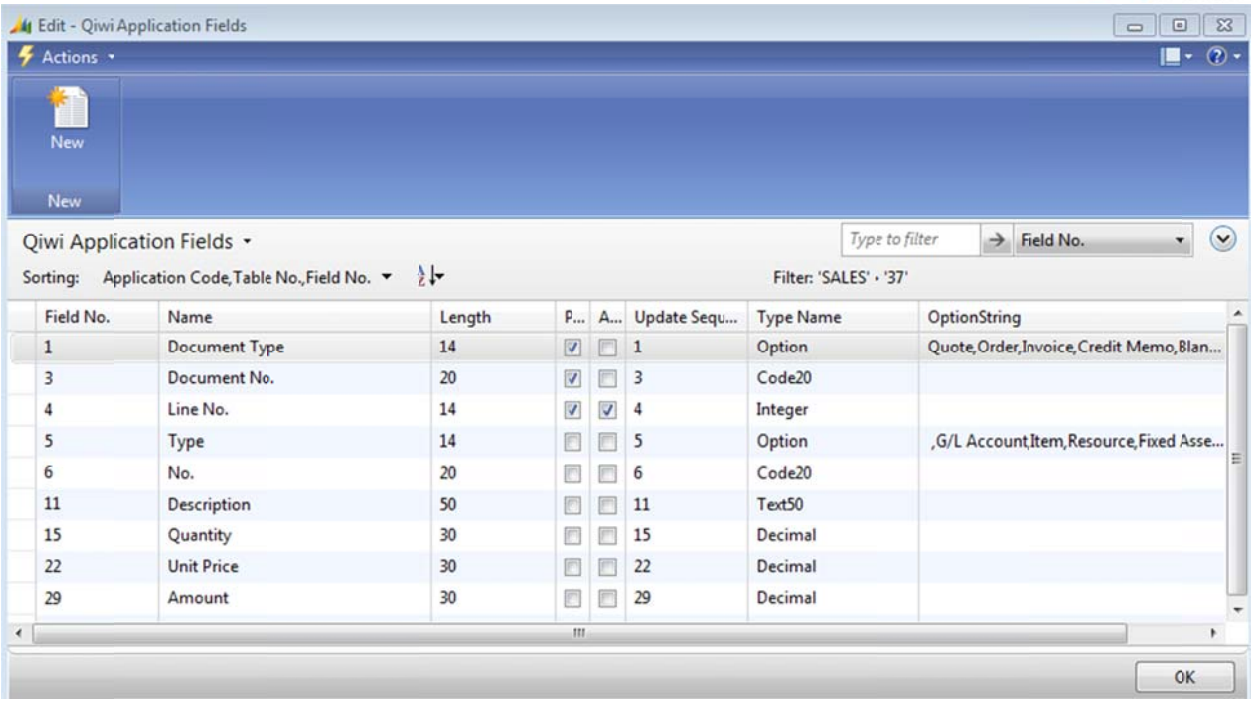


Notice how only the certified applications are showing up inside the mobile device.

The basis for each application is a set of tables and their fields. You can choose from any of the tables available inside Dynamics NAV and all their fields. The idea is to only select a small subset of tables and fields for the application to avoid sending a lot of data over the wireless network.

Here we defined the tables we need for this application. In this case we only have five tables for a simple sales application that can work with customers, ledger entries, items and sales orders.

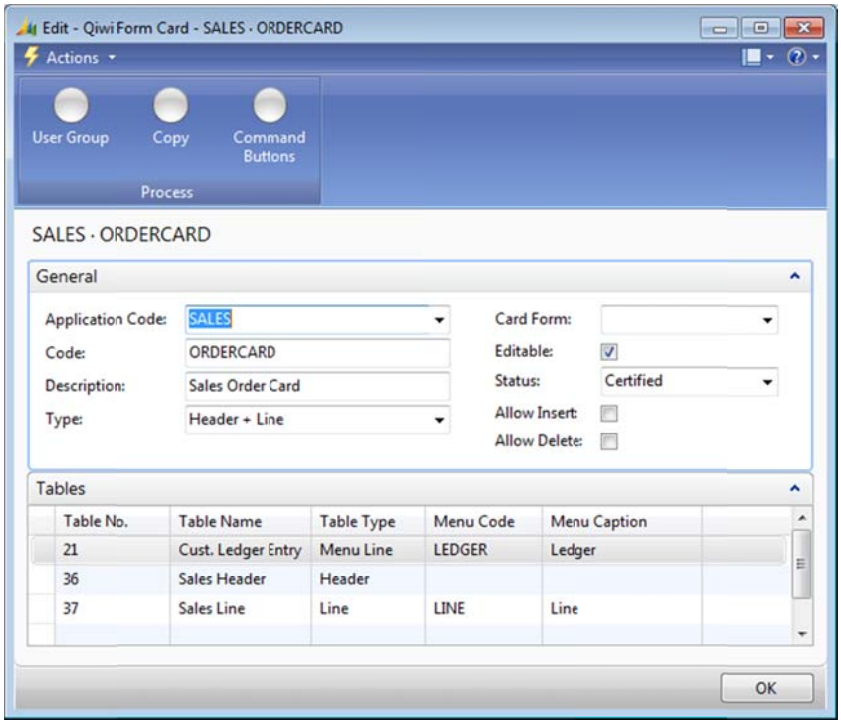
Once we have selected the tables for the application we can now select the fields for each table that we need.

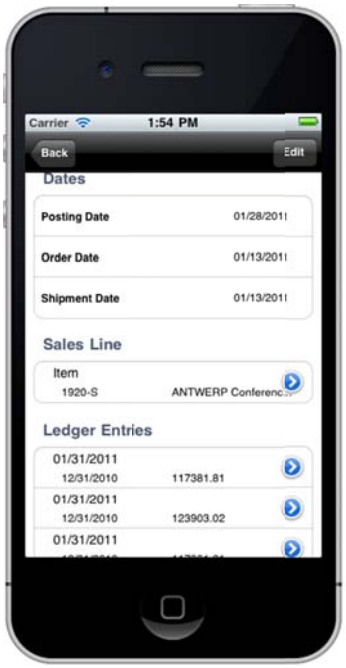


Here is an example of fields needed for the sales order header. We can also define filters to limit the number of records coming over the wireless network. An example could be only sales orders for this particular sales person. Again the idea is to limit the amount of data we transmit back and forth.

Once we have defined the tables and fields for the application we specify the forms they user will be presented with. The form sets up the tables and fields we defined before in a manner that makes sense to the end user.

I the below example we have defined a sales order form that also includes customer ledger entries. The fields for each table are also defined on this form.





It is also possible to define command buttons that will execute application logic in codeunits to give the user the ability to execute commands and send them to Dynamics NAV. Qiwi support an unlimited number of buttons and they can execute any code a Dynamics NAV developer specifies. The concept is quite simple. For each button defined a button command is specified. That is sent to a codeunit in NAV with a reference to the Table and Record you are currently on. The developer can now capture this information and execute the code needed for the operation.

Here is an example how to toggle release/reopen order and how it looks on the mobile device.

Codeunit 37014128 Qiwi Button Command Processing - C/AL Editor

```
Documentation()

OnRun()

ProcessCommand(RecRef : RecordRef;TableNo : Integer;ButtonCommand : Text[50])
CASE ButtonCommand OF
  'RELEASESALESORDER':
    BEGIN
      ReleaseSalesOrder(RecRef,TableNo);
    END;
  ELSE
    ERROR(STRSUBSTNO('Unknown button command %1',ButtonCommand));
END;

ReleaseSalesOrder(RecRef : RecordRef;TableNo : Integer)
IF TableNo <> DATABASE::"Sales Header" THEN
  ERROR('RELEASESALESORDER command expects a sales header record.');

SalesHeader.SETPOSITION(RecRef.GETPOSITION);
SalesHeader.TESTFIELD("Document Type",SalesHeader."Document Type"::Order);

SalesHeader.GET(SalesHeader."Document Type",SalesHeader."No.");

IF SalesHeader.Status <> SalesHeader.Status::Released THEN
  ReleaseSalesDocument.RUN(SalesHeader)
ELSE
  ReleaseSalesDocument.Reopen(SalesHeader);
```

Offline capability

Qiwi will try to connect to the Web service and stay connected for all operations to be completed. Qiwi will however support offline operation in the following circumstances:

- If the mobile device loses coverage (Wi-Fi and 3G)
  Qiwi will store all changes on the device until coverage is back in which case it will go back online. The user must now synchronize the offline data with Dynamics NAV

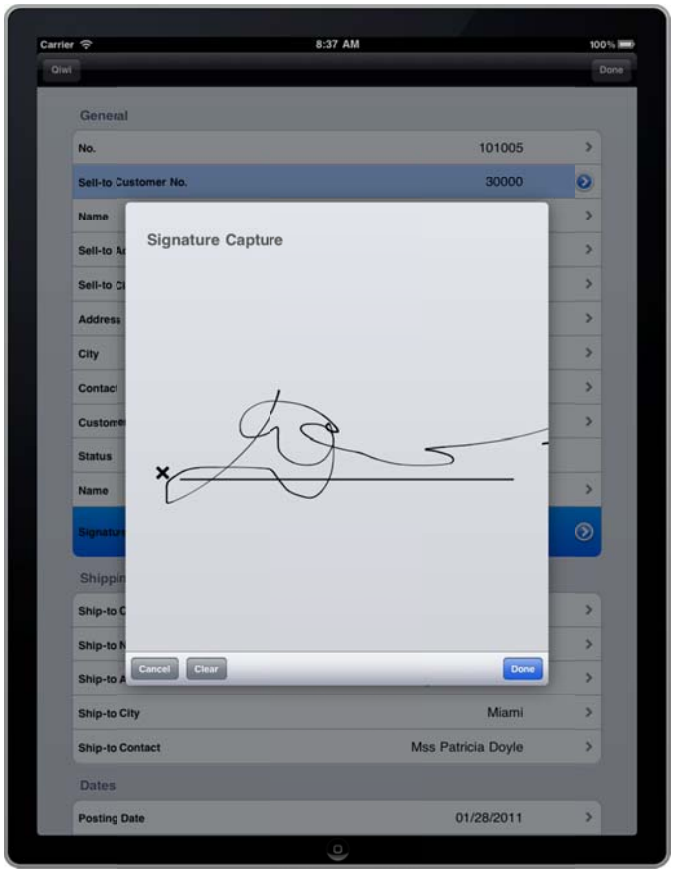
- If the user select to go offline
  Qiwi will synchronize all the data needed for the application to work properly. As soon as the synchronization is done the device will remain offline until the user selects to go back online.

In any offline mode there is no validation of data but Qiwi will queue all updates on the device until online again.

Once the device is back online, updates needs to be synchronized back to Dynamics NAV. New records created during the offline session will be sent to Dynamics NAV and receive new primary keys. Existing records will be updated as normal. If an update is invalid or can't be validated, the user will get see a log of errors that can be edited or deleted as needed.

Signature Capture

You can set up a BLOB field in Dynamics NAV to act as a signature capture field. By make the BLOB field part of the application and letting Qiwi know that the field should capture a signature when activated, Qiwi will display a signature pad and prompt the user to write his or her signature.



Once done, the signature is captured with a date stamp and sent to Dynamics NAV.