# Introduction

Welkom to the trainer guide to the ForNAV training material. Please use this material as a guide. What matters is that your students will be able to create great looking and easy to use reports. Please make sure you adapt your training methods and materials to the level of the students taking the course.

## Training method

Each section of the training course can be divided in three parts, preparation, execution, and reflection. This will ensure that students will have a good mix of all these parts.

Trainers behavior during the parts:

**Preparation.** Make sure the students know what it is you are asking from them. Run through the exercise and ask questions to see if the students know what it is you are asking from them. Help the students plan their work. Create a rough outline or design of what the students are going to be doing. Any theoretical knowledge should be given in this section.

**Execution.** Mostly coaching. Let students do their own work. Let them make mistakes and let them fix themselves. Walk around to see what each student is doing and ask open questions about the work you see. The point here is to have the students work with the software, not to have them execute flawless work. Questions like “what is the reason of…” or “how will that…” are ideal as they make the students think about what they are doing.

In some cases, a module will start with an exercise. In this case the point is to make the students use the skills from the previous modules to complete the exercise. If students struggle with the exercise you can give a quick demo, point students to a ForNAV standard report, give them the C/AL code text files, or even give them the cheat sheets. The point of this is to get the students to think about what they want to do and how to solve it. This training method may be uncomfortable, but it will promote problem solving ability.

**Reflection.** Walk through the completed exercise with the students. If the students are comfortable with it let them present their own work and discuss with the group. If not, then ask questions like “How did you solve this?”. Run through the “perfect example” with the students but realize that there is more than one solution to any problem, so students might do something different and get perfect results. If so ask questions and keep an open mind.

There is no prescribed order of these parts. In the course material we usually work from Preparation to Reflection but there is no problem with starting with an exercise, reflecting on that and finally have students plan or design a more advanced report.

A further training method that was used in creating these modules is repetition. If you look through the modules you will notice that as the students advance they will keep on working with reports they worked on before. This is done to create a repetition element that will ensure that students can link new knowledge and skills to existing knowledge and skills thus ensuring better retention.

## Webinars

All webinars consist of the elements Pre-Training, Reflection, Preparation, and Activity. The groups should be no smaller than 4 and no more than 10 participants.

**Pre-Training.** This is an exercise or setup that the students need to complete before taking part in the webinar. This typically consists of some simple setup, installation, or video.

**Reflection.** Looking back on the pre-training or activity from the previous webinar. Ask open questions and stimulate discussion.

**Preparation.** This is the main presentation and demo part of the webinars. As the groups are small discussion is encouraged. Don’t just talk. Ask some open questions to encourage participation and discussion.

**Activity.** This is the homework part of the webinar. Before closing make sure everyone understands the tasks.

## Modules

There are many parts to the ForNAV training material. Some more advanced than others. When planning your days of training you should mind the level of the students. Do they have a technical background? Do they know NAV at all? Always check with your students to see of the level is suitable. If not, then switch to more or less advanced options.

|  |  |  |
| --- | --- | --- |
| **Module** | **Name** | **Level** |
| B01 | Setup | Basic |
| B02 | Fundamentals of the ForNAV Designer | Basic |
| B03 | Custom Report Layouts | Basic |
| I01 | Conversion | Intermediate |
| I02 | Create whole document with several related tables | Intermediate |
| I03 | Layout, images, and watermarks | Intermediate |
| I04 | Multilanguage | Intermediate |
| A01 | Charts and Sparklines | Advanced |
| A02 | JavaScript | Advanced |
| A03 | Several headers and footers | Advanced |
| A04 | Templates | Advanced |
| A05 | Report based on Query data | Advanced |
| A06 | Report based on an arguments table | Advanced |
| W01 | Business Central Dataset | Basic |
| W02 | Basics of the Designer | Basic |
| W03 | Advanced ForNAV Designer | Intermediate |
| W04 | JavaScript Deep Dive | Advanced |
| W05 | Creating Extensions | Advanced |

## Prerequisites for the training

Students must ensure they have installed and configured these prerequisites before the training starts.

1. A Local installation of Microsoft Dynamics NAV 2017/2018 or Microsoft Dynamics 365 Business Central On Prem. You need at least the Server, Windows Client, Database, and Object Designer;
2. Local installations only, no Docker;
3. A Solution Developer NAV/BC license;
4. Test if you can import and compile text files of tables;
5. Publish page 7702 (Fields) as an OData webservice. Test to see if you have access. (<https://www.fornav.com/knowledge-base/troubleshooting-the-nav-web-service/>)

# B01 - Setup

|  |  |
| --- | --- |
| **Level** | Basic |
| **Duration** | 45 min |
| **Instructor participation** | Medium |
| **Training approach** | As this is something that is very easy to figure out this will mostly be a do it yourself exercise. |
| **Prerequisites** | All students have access to an installation of Dynamics NAV 2018 with the Cronus Database with a developer license. |
| **Training materials** | Getting Started with Reports ForNAV Converter Nov15 |
|  | <http://www.fornav.com/getting-started-with-reports/> |
|  | B01 - Cheat Sheet.docx  B01 - Setup.pptx  Whiteboard or flip over + markers |
| **Objective** | At the end of this module students will have ForNAV setup correctly on their machines. Students know how to install ForNAV in server environments. |

## Execution

Duration: 25 min

Students will download the latest ForNAV version and install it on their own system. They will use the Cheat Sheet and the video tutorials. The trainer will walk around and help.

Students will:

Task 1, Install ForNAV on your local machine. You need to make sure a supported version of NAV is installed.

Task 2, Import the ForNAV report Pack in the 70000 object range

Task 3, Configure ForNAV and NAV

1. Setup Odata in the designer;
2. Setup NAV database in the designer.

## Reflection

Duration: 10 min

Ask the students what their experience was. What went well, what went wrong.

## Preparation

Duration: 10 min

With the students figure out how to set up ForNAV in a typical customer system. What needs to be installed where, how do you install licenses.

Use a whiteboard and with the students draw a diagram of what needs to be installed where. Where do you design reports and how to move them to production?

# B02 - Fundamentals of the ForNAV Designer

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| --- | --- |
| **Level** | Beginner |
| **Duration** | 60 min |
| **Instructor participation** | High |
| **Training approach** | As this is probably the first time students will work with the ForNAV designer we will take an instructor led approach. The instructor will demo most of the exercise, the students will follow |
| **Prerequisites** | All students have access to an installation of Dynamics NAV 2018 with the Cronus Database with a developer license. |
|  | All students have the ForNAV designer installed in the same environment |
|  | All students have a working knowledge of NAV reports and their datasets |
| **Training materials** | Pdf with the result of the customer top 10 report in a Cronus NAV 2018 W1 database |
|  | B02 - Cheat Sheet.docx  B02 - Fundamentals of the ForNAV Designer.pptx |
|  | Report 88000 and Report 88001 |
| **Objective** | At the end of this module students will be able to create a basic report layout in the ForNAV designer based on a single table. |

## Preparation

Duration: 10 min

Show a pdf of the result of the customer top 10 report on the screen.

Ask students how they would go about creating this report. What would they need to do in order to create this report? There are no bad answers here, the goal is to start the students thinking about the design process.

Briefly talk the students through the steps you will take to create the report:

1. Select a list template;
2. Create reports from the ForNAV designer and save it in NAV;
3. Edit a report and preview it;
4. Add fields in a table;
5. Use Captions, Field Groups, and Field Lookup;
6. Sorting and filtering. Execution
7. Controls

## Execution

Duration: 40 min.

Demo and let the students work along on their own reports. Check if the students keep up and match your pace to the students.

1. In the ForNAV designer select New, Report Templates, select the List Template.
2. Save the object in the NAV database. Go to the properties of the report. Name the object Customer Top 10 and object no. 88000. Save and close the designer.
3. Open the NAV object designer, select report 88000. Show what the object looks like in C/Side.
4. Run this from the object designer and select “Open Designer”.
5. Preview the object from the Designer.
6. Go to the Records option in the report properties and Demo how ForNAV gets information from tables.
7. Go to the OnPreReport trigger and show how to get tables using the JavaScript code. Mention the advanced JavaScript module in the training.

At this point give the students some time to add some fields, text boxes etc. Demo where needed but let the students get some hands-on experience.

Start the creation of the Customer Top 10 list. Demo and let the students work along on their own reports. Check if the students keep up and match your pace to the students.

1. Add a table to the body part with the fields No. Name, Address, and Balance (LCY);
2. Space the columns;
3. Add the background color Gainesboro to the odd rows;
4. Add a table with the captions for the No., Name, Address, and Balance (LCY) fields and add this to the Header part;
5. Space these columns the same as the body table;
6. Add all borders to the header table, make text bold and text size 8;
7. Add the Address Fieldgroup and add it to the address column in the body. Demo how ForNAV creates Fieldgroups;
8. Set the Can Grow property on the Address field to true;
9. Set the Text Alignment property of the Address field to Top Left;
10. Sort Customers with the highest balance first, go to the properties of the list, go to Data Item Table View. Sort Descending on the field Balance (LCY);
11. Only display the first ten records. Set Max Iteration to 10.

Let students add a payment terms column between the Address and the Balance (LCY).

Demo the use of the payment terms description instead of the payment terms code. Use the Field Lookup for this.

Demo what will happen if there is an error. Change the name field to something that does not exist.

Concluding Exercise: Let the students create a new report for the Vendor top 10 using the customer top 10 as base. Call this report Vendor Top 10, save it as object 88001. Give hints where needed. Skip this when time is short.

## Reflection

Duration 10 min

Go through the process using questions. Ask questions like: “What did you notice”, “What did we just do”, “What feature did you like”, “What will really make your life easier”.

Show the students the Dataset in C/Side.

Again, show the pdf and ask students what they would do to further improve this report.

# B03 - Custom Report Layouts

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| --- | --- |
| **Level** | Basic |
| **Duration** | 90 min |
| **Instructor participation** | High |
| **Training approach** | A specific module for students who don’t have a developer’s license. As this is probably the first-time students will work with the ForNAV designer we will take an instructor led approach. The instructor will demo most of the exercise, the students will follow |
| **Prerequisites** | All students have access to an installation of Dynamics NAV 2018 with the Cronus Database with the demo reports installed; |
|  | All students have the ForNAV designer installed in the same environment. |
| **Training materials** | B03 - Cheat Sheet.docx  B03 - Custom Report Layouts.pptx |
|  | Report 88007 and Report 88008 |
| **Objective** | After this module students can open the ForNAV designer from the Custom Report Layout and make basic changes to the report. Students can explain what they can and cannot do from the Custom Report Layout. |

## Preparation

Duration: 30 min

Demo the application. Have demo report 88007 ready so you can go through the user interface to demonstrate the workings of ForNAV.

Cover:

* Opening the designer from the custom report layouts;
* All the standard controls;
* Report Explorer;
  + Dataset;
  + Sections;
* Field List;
* Properties fields;
* Font, Alignment, and layout controls in the ribbon;
* What they CANNOT change. Datasets, Flowfields etc.

## Execution

Duration: 45 min

Students will create a custom report layout for report 88007 and add:

1. A company logo;
2. An address field in the header that resizes automatically.
3. A table for the sales lines;
4. Transheaders and footers;

## Reflection

Duration: 15 min

Go through the process using questions. Ask questions like: “What did you notice”, “What did we just do”, “What feature did you like”, “What will really make your life easier”.

Show the students the Dataset in C/Side. Make sure they know they cannot change the reports dataset or code.

Again, show the pdf and ask students what they would do to further improve this report.

# I01 - Conversion

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| --- | --- |
| **Level** | Intermediate |
| **Duration** | 60 min |
| **Instructor participation** | Medium |
| **Training approach** | Let your students convert the sample reports. Walk around and help where needed. Lead the comparing during the reflection by showing the compare tool on the screen. |
| **Prerequisites** | All students have access to an installation of Dynamics NAV 2018 with the Cronus Database with a developer license. |
|  | All students have the ForNAV designer installed in the same environment. |
| **Training materials** | Report 88005 - Classic, Report 101 |
|  | Report 88005 - ForNAV, Report 88101  I01 - Cheat Sheet.docx  I01 - Conversion.pptx  PowerShell Commands.ps  <http://www.fornav.com/knowledge-base/powershell-cmdlet/> |
| **Objective** | At the end of this module students can convert all classic and RDLC reports to ForNAV reports. Students can explain how to use the command line parameters. |

## Execution

Duration: 25 min

Students will convert the classic report Report 88005 - Classic to a ForNAV report using the converter. Name the new report Report 88005 - ForNAV.

Students will convert the RDLC report Customer List (101) Report 101 to ForNAV. Name the new report Report 88101.

Students should be able to do this without much help. If your students need more help you can give them the Cheat sheet.

## Reflection

Duration: 20 min

Compare the in- and output files of the classic report using a compare tool (Notepad++, Araxis, Beyond Compare, etc.). Discuss what changes there are between the classic and the ForNAV version. Look what happened to:

* DataItems;
* SHOWOUTPUT;
* Properties like PrintOnlyIfDetail , TotalFields, CalcFields;
* What has ForNAV added to the converted report.

Do the same for the converted RDLC report.

## Preparation

Duration: 15 min

Help your students figure out how to convert all their reports in one go. Explain advanced options like Split output to one file per object, Add line to comment block etc. Make sure your students have what they need to start converting their own reports. If one of the students has a couple of reports to convert that will be a good case to run through with all the students. Explain the PowerShell cmdlets.

Convert both reports from the execution to an on prem AL extension in a demonstration.

# I02 - Create whole document with several related tables

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| --- | --- |
| **Level** | Intermediate |
| **Duration** | 2 hours |
| **Instructor participation** | High |
| **Training approach** | The instructor will demonstrate some key principles and design the report with the students. Then the students will finish the report themselves. |
| **Prerequisites** | All students have access to an installation of Dynamics NAV 2018 with the Cronus Database with a developer license. |
|  | All students have the ForNAV designer installed in the same environment. |
| **Training materials** | Report 88002  Report 88003  I02 - Cheat Sheet.docx  I02 - Create whole document with several related tables.pptx  I02 - C-AL code to add.txt  Whiteboard or flip over + markers |
| **Objective** | At the end of this module the students can create a report that uses several connected tables and know how to get data without altering the dataset. |

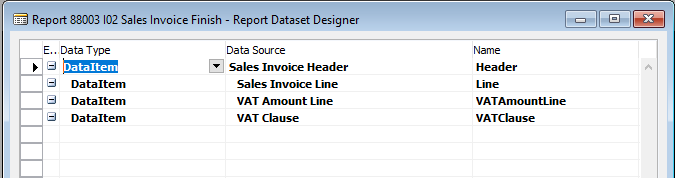
## Preparation

Duration: 30 min

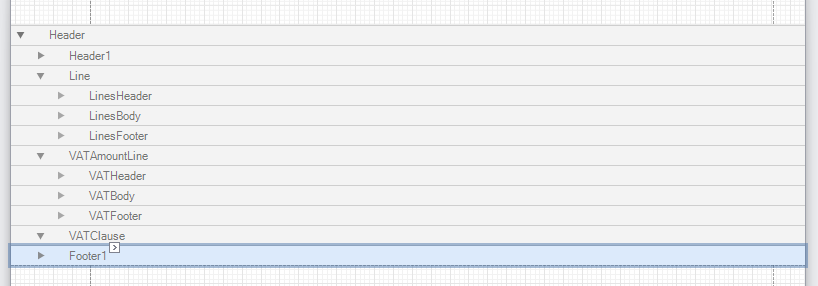
In this module we will create a sales invoice from a template. Using a whiteboard create a design for the report with the students. Determine:

* What the dataset from NAV will look like;
* What the other tables are we will need;
* What sections we need on the header;
* What fields we need on the header;
* What sections we need on the lines;
* What fields we need on the lines.

The dataset for a sales invoice should look like this:



The sections will look like this.



Then use the Header Line template to create the basic report outline with the students.

## Execution

Duration: 45 min

* Add a VAT Amount Line and a VAT Clause DataItem and make them temporary;
* Add C/Side code to get the VAT data;
* Add a VATAmountLine section with a Header, Body, and Footer;
* Add a Header and a Footer to the line Data Item. Captions in the header, Totals in the Footer;
* Add the company information data to the footer.

## Reflection

Duration: 30 min.

In this section students will present the reports they made explaining how they created them. If students are unwilling to do this then get the results of one or two students on the screen and discuss with the group. Ask questions like “How did you solve this?”. Run through the “perfect example” with the students but realize that there is more than one solution to any problem, so students might do something different and get perfect results. If so ask questions and keep an open mind.

# I03 - Layout, images, transheaders and -footers, and watermarks

|  |  |
| --- | --- |
| **Level** | Intermediate |
| **Duration** | 60 – 90 mins |
| **Instructor participation** | Low |
| **Training approach** | Coaching instead of teaching. The students should be able to finish this module with very little teaching. |
| **Prerequisites** | All students have access to an installation of Dynamics NAV 2018 with the Cronus Database with a developer license. |
|  | All students have downloaded and installed the ForNAV report pack. See module B01 – Setup. |
|  | All students have the ForNAV designer installed in the same environment.  The finished report from module I02 |
| **Training materials** | ForNAV VAT Sales Invoice |
|  | I03 - Cheat Sheet.docx  I03 - Layout, images, and watermarks.pptx  I03 - C-AL code to add.txt |
|  | Report 88003 |
|  | Report 88004  <https://www.fornav.com/knowledge-base/prepending-and-appending-pdf-files-to-a-fornav-report/> |
| **Objective** | At the end of this module the students will be able to create complete document reports and style them according to their desire. |

## Execution

Duration: at least 30 min.

The objective of this module is to create a sales invoice that matches the sales invoice of your own company or of a customer.

Taking the ForNAV Sales Invoice as an example your students will complete the Sales Invoice started in Module I02.The starting point for this exercise will be Report 88003 or the report the student created in module I02.

All students will add at least:

* A watermark;
* An appended pdf file;
* Transheaders and footers;
* A company logo;
* An address field in the header that resizes automatically;

Students should be able to do this without much help. If your students need more help you can give them the Cheat sheet.

## Reflection

Duration: 15 min

Go through your students results with them. Take the reports that students are struggling with and figure out a solution with your students. Ask rather than teach. If a single student has trouble, try to get the rest of the students to help them out.

## Preparation

Duration: 30 min

Your students will be finishing their reports in their own time. Go through what needs to be done for each student and have them come up with a design for their report. Think about layout, what fields do they want where. How to line up fields together, add a pdf with terms and conditions etc.

Demonstrate some advanced techniques like

* Add a No. Of copies field to the header. Demonstrate this with the ForNAV Sales Template report;
* Has OnPostSectionTrigger and Has OnPreSectionTrigger properties of sections;
* Section properties like Print On Every Page, Place in Bottom.

If there is need you can schedule a follow up webinar to help out with the finishing of the reports or provide your students with contact information in order to help them out with any problems.

# I04 - Multilanguage

|  |  |
| --- | --- |
| **Level** | Intermediate |
| **Duration** | 90 min |
| **Instructor participation** | Medium |
| **Training approach** | Start by explaining the concepts. Let the students work on their own report. After the exercise you should take care to dig up some real-world scenarios from the student’s experience. |
| **Prerequisites** | All students have access to an installation of Dynamics NAV 2018 with the Cronus Database with a developer license. |
|  | All students have the ForNAV designer installed in the same environment. |
| **Training materials** | ForNAV VAT Sales Invoice  I04 - Cheat Sheet.docx  I04 - Multilanguage.pptx  Report 88004  Report 88006 |
| **Objective** | At the end of this module the students can convert standard reports to multilanguage reports. |

## Preparation

Duration: 20 min

Preview a ForNAV VAT Sales Invoice for a customer with another language. Ask the students what they notice. Note that there are some fields that are translated and some that are not. Explain the translation options in ForNAV reports:

1. Field Captions and Text Constants in Dynamics NAV.
2. CurrReport StandardCaptions;
3. Multilanguage Label texts;
4. Translation tables, demonstrate using table 88000 in the training objects.

Also explain the way Dynamics NAV gets the report language. The CurrReport.LANGUAGE should be set in C/Side.

Explain and demonstrate Autofit and Multiline. Explain that ForNAV cuts the text logically when cutting for Multiline.

## Execution

Duration: 50 min

Adapt the report that you made in I03 (Report 88004) so that all the labels are translated to the customers language. Don’t add any field translations or text constants in Dynamics NAV. Make sure you are working with a W1 database for maximum effect.

Add an HTML label in the footer wishing your customers a merry Christmas in their own language. Format it like:

Merry Christmas

## Reflection

Duration: 20 min

Discuss with the students the best way to make reports multilanguage. When to use field captions, when to use CurrReport.StandardCaptions, and when to use labels.

Discuss the needs of the student’s employers or customers. If there are students with an interesting case let the students solve that case together.

# A01 - Charts

|  |  |
| --- | --- |
| **Level** | Advanced |
| **Duration** | 60 min |
| **Instructor participation** | Medium |
| **Training approach** | Start by explaining the concepts. Let the students work on their own report. After the exercise you should take care to dig up some real-world scenarios from the student’s experience. |
| **Prerequisites** | All students have access to an installation of Dynamics NAV 2018 with the Cronus Database with a developer license. |
|  | All students have the ForNAV designer installed in the same environment. |
| **Training materials** | <https://www.fornav.com/knowledge-base/how-to-create-charts-with-fornav/>  A01 - Charts.pptx, A01 - Cheatsheet.docx |
|  | Report 88057 and Report 88058 |
| **Objective** | At the end of this module students can create a chart in a report. |

## Preparation

Duration: 25 min

Explain the concept of Data Tables. Demonstrate the creation of the Data Table by creating a Data Table on the Customer Data Item of the Customer top 10 report. Add just the Balance (LCY) field to the Data Table. Display the result of the Data Table in a sparkline with type of bar in the body section of the customer.

Running this report will show that the Data Table is filled while the report iterates through the Data Table.

Next place the sparkline in a new footer called Chart. Display the results. Explain that the Data Table is filled after the iteration through the Data Table and that the chart can be displayed.

Finally delete the sparkline and add a chart.

1. Add the field Customer.Name and Customer.Sales (LCY) to the Data Table;
2. Add Sales (LCY) to the Calculated Fields;
3. Add a chart and select the basic Bar type and click finish;
4. In the properties of the Chart set the Data Member to the Data Table;
5. Set the Series Data Member to No;
6. Drill down into the Series Collection property;
7. For Series 1 select the properties tab, expand the Value Data Members and set the Value property to Balance\_LCY;
8. Set the Argument Scale Type to Qualitative;
9. Repeat for Series 2, set that to Sales\_LCY with the same Argument Scale Type;
10. Save and preview the report.

As a second demonstration add a Pie Chart in a new Footer part called Pie Chart

1. Drag a new Chart Control in the new Footer, select Pie 3D in the Wizard and click Finish;
2. In the Data Member property of the chart select List;

* In the Series Data Member property of the chart select Balance\_LCY;
* Drill down in the series property and open the Properties tab for Series 1;

1. Expand the Value Data Members property and select Balance\_LCY in the Value property;
2. Save and preview the report.

## Execution

Duration: 25 min

Students will add a create a new footer to the Line Data Item of the sales invoice and add a stacked bar chart that displays the Line amount and line discount for each line of the invoice.

## Reflection

Duration: 10 min

Discuss with the students some real life examples. When would they use charts and what would they display.

# A02 - JavaScript

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| --- | --- |
| **Level** | Advanced |
| **Duration** | 120 min |
| **Instructor participation** | High |
| **Training approach** | This is an area that needs some theory. Especially if there are NAV developers in the group. Start out with some explanation of JavaScript basics. Then show an example, all instructor led. For the Execution part students will actually work with JavaScript themselves. If your students have JavaScript Experience then skip through the theory. |
| **Prerequisites** | All students have access to an installation of Dynamics NAV 2018 with the Cronus Database with a developer license. |
|  | All students have the ForNAV designer installed in the same environment. |
| **Training materials** | A02 - AL functions in JavaScript.docx  A02 - Cheat Sheet.docx  A02 - Javascript.pptx  A02 - PrintFunction.txt  A02 – GetCommentLines.txt  Report 88050  Report 88004 and Report 80051 |
|  | [Working with JavaScript in the ForNAV Designer YouTube](https://www.youtube.com/watch?v=4cwbxUq-tc8&t=0s&index=11&list=PLtpjnuA-F0c9bZf3emvhz86-S1uX0a0II) |
| **Objective** | At the end of this module students can use JavaScript to format text, show or hide parts of the report, get data from NAV, and manipulate strings. |

## Preparation

Duration: 45 min

Present the JavaScript theory according to A02 - Javascript.pptx. If your students are experienced in JavaScript then just explain de special ForNAV syntax like Get() of Find().

During the demo you should at least demonstrate these functions. Use Report 88050 or another report that you prepared.

* Getting Singleton tables;
* Getting data from tables like item;
* Mathematical functions;
* Getting data from an array;
* String manipulation like UpperCase or joining strings.

## Execution

Duration: 45 min

Using Report 88004 do:

* Make the Invoice total amount red when the amount is over €7000;
* Only add the logo and the footer when the invoice is not printed;
* Get the Sales Comment Lines and add them to a field on the header. Make the field Multiline and CanGrow.

## Reflection

Duration: 30 min

Summarize what was covered during this module.

What else could we do with JavaScript? Have the group come up with examples and discuss those. If there is a particularly good example then perhaps create a design with the students.

# A03 - Several headers and footers

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| --- | --- |
| **Level** | Advanced |
| **Duration** | 90 min |
| **Instructor participation** | Low |
| **Training approach** | We start this module with an exercise. Students should have all the knowledge they need to complete this by now. Observe and coach. After the exercise let the students present their solutions. Finish by going through the design of some real-world examples. |
| **Prerequisites** | All students have access to an installation of Dynamics NAV 2018 with the Cronus Database with a developer license. |
|  | All students have the ForNAV designer installed in the same environment.  Students must have followed the JavaScript module |
| **Training materials** | A03 - Cheat Sheet.docx  A03 - Several headers and footers.pptx  Report 88006  Report 88054  <http://www.fornav.com/knowledge-base/multiple-footers/>  Flip Over or whiteboard with markers |
| **Objective** | After following this module students can create reports with multiple headers and footers that are shown or hidden based on conditions. |

## Preparation

Duration: 25 min

Start by explaining how footers behave:

*“The required space for each footer in your report is always reserved. This is also the case if your footer is hidden by conditions in your report. However, there is a feature than can help produce reports with conditional footers. The trick is to tell the system that your footer does not require any space. In the classic version of NAV this was the equivalent of setting a height of 0 (zero) on your section. In the ForNAV designer you have a property named Is Watermark on each section. By setting this property to Yes the system will no longer reserve any space for this section. The result is that the section is printed under the next section, hence the name Watermark.*

*If you set your footers to behave as watermarks, you can control the visibility from code. After the conditional footers, you should add a placeholder section. A placeholder section is simply an empty section, which reserves the space the previous watermark sections need. This means that the placeholder section should have the height of the highest conditional section.”*

Draw the footer behavior on a flop over or whiteboard. Make sure to explain the watermark behavior. Watermarks can be used on other sections as well.

Go through hiding and showing various report parts. Ask the students for a real world example and go through the design for these examples.

## Execution

Duration: 40 min

In the multilanguage module you added a Merry Christmas label to the footer. Create a new footer for this label that is only displayed when the report is printed between December 10th and 25th.

## Reflection

Duration: 25 min

In this section students will present the reports they made explaining how they created them. If students are unwilling to do this then get the results of one or two students on the screen and discuss with the group. Ask questions like “How did you solve this?”. Run through the “perfect example” with the students but realize that there is more than one solution to any problem, so students might do something different and get perfect results. If so ask questions and keep an open mind.

# A04 - Templates

|  |  |
| --- | --- |
| **Level** | Advanced |
| **Duration** | 60 min |
| **Instructor participation** | High |
| **Training approach** | This will require some explanation. Work with your students to find the need for templates (reflection), design the new report (preparation), and let the students create it (exercise). |
| **Prerequisites** | All students have access to an installation of Dynamics NAV 2018 with the Cronus Database with a developer license. |
|  | All students have the ForNAV designer installed in the same environment. |
| **Training materials** | A04 - Cheat Sheet.docx  A04 - Templates.pptx  Report 88004, Report 80052  Whiteboard or flip over + markers |
| **Objective** | At the end of this module students can create template reports and create reports that use those templates. |

## Reflection

Duration: 15 min

Start this module by asking students how much work it would be to create sales orders, credit memos etc. This requires some knowledge of the NAV dataset so help students when they don’t have this experience.

Look back at the creating of the Sales Invoice report. What did the students do, what could be used again? Use a whiteboard or flip over to create a list.

## Preparation

Duration: 15 min

Using the standard ForNAV report “ForNAV VAT Order Confirmation” explain the use of templates in sections. Open Report 80004 in the ForNAV designer and ask your students which of these fields should be reused by templates. Create the design the students will build in the exercise. Draw from the list you made and use a whiteboard or flip over.

Make sure the students know that in some cases the Data Item Tables need to be changed. This is why the Data Item Names are generic (i.e. Header).

## Execution

Duration: 30 min

Create a new Sales Order Confirmation report that has the same header, footer and VAT section as the Sales Invoice that was created in I03.

Change the Template report Header, move the address fields down and make the logo bigger. What is the change on the new report?

# A05 - Report based on Query data

|  |  |
| --- | --- |
| **Level** | Advanced |
| **Duration** | 90min |
| **Instructor participation** | Medium |
| **Training approach** | We start this module with some reflection. Question the students on the fastest way to get data from the SQL database. Then help the students prepare for an exercise. Students end the module with an exercise. The exercise can be done off site as homework. |
| **Prerequisites** | All students have access to an installation of Dynamics NAV 2018 with the Cronus Database with a developer license. |
|  | All students have the ForNAV designer installed in the same environment. |
| **Training materials** | A05 - Cheat Sheet.docx  A05 - Report based on Query data.pptx |
|  | Report 88055 |
|  | Table 88000 |
| **Objective** | After this module students can create ForNAV reports based on query data instead of table data. |

## Reflection

Duration: 10 min

Up until now students have only created reports based on tables. Those tables have sometimes been temporary tables.

Using questions guide students towards why we would like to create reports based on a query. Ask questions like:

* What is the impact of large tables on report performance?
* What is the fastest way to get data from SQL databases?

## Preparation

Duration: 15 min

Explain how to get data from a Query into a report.

* Create a new table based on the query fields;
* Add that table to the report dataset in ForNAV as a temporary table;
* Fill that table from the query with C/AL code;
* Sort and filter like you would with a normal table.

## Execution

Duration: 65 min

* Create new report that uses data from query 100, “Top Customer Overview”;
* Create a new table with the same fields as the query;
* Use the new table as the report dataset, set as temporary;
* Write code to add data to the temporary table;
* Sort the data based on the highest Sales (LCY);
* Start with a List Template.

# A06 – Arguments table

|  |  |
| --- | --- |
| **Level** | Advanced |
| **Duration** | 90 min |
| **Instructor participation** | Medium |
| **Training approach** | This is more of a design pattern that an actual training exercise. Explain the pattern first, then have students do the exercise. |
| **Prerequisites** | All students have access to an installation of Dynamics NAV 2018 with the Cronus Database with a developer license. |
|  | All students have the ForNAV designer installed in the same environment. |
| **Training materials** | A06 - Cheat Sheet.docx  A06 - Arguments table.pptx |
|  | Report 88055  Report 88056 |
|  | Table 88050  Table 88051 |
| **Objective** | After this module students can create a report based on an arguments table and use that table to filter the report dataset. |

## Preparation

Duration: 30 min

Explain the theoretical use of the arguments table.

Demo the arguments table pattern by using the “ForNAV Trial Balance” standard ForNAV report.

* No data means no report;
* The name of the arguments table in the dataset is always Args;
* Show the “ForNAV Trial Balance Args.” Table in the object designer;
* Show the properties of the “ForNAV Trial Balance Args” table in the report properties in the Object Designer. Note that the Temporary parameter is true;
* Show the reports request page in the object designer. Show the properties of the fields;
* Show the code in the Args DataItem and the G/L Account DataItem.

## Execution

Duration: 45 min

Using the report that we created in A05 we will add an arguments table and use the fields from that table in the report request page. We will use that table to filter the query that we use to get the data.

* Create the arguments table
* Add the arguments table to the dataset
* Add the arguments table fields to the Header1 section
* Create the request page
* Filter the query based on the request page

## Reflection

Duration: 15 min

In this section students will present the reports they made explaining how they created them. If students are unwilling to do this then get the results of one or two students on the screen and discuss with the group. Ask questions like “How did you solve this?”. Run through the “perfect example” with the students but realize that there is more than one solution to any problem, so students might do something different and get perfect results. If so ask questions and keep an open mind.

# W01 – Business Central Dataset

|  |  |
| --- | --- |
| **Level** | Basic |
| **Duration** | 60 min |
| **Instructor participation** | High |
| **Training approach** | Webinar + homework |
| **Prerequisites** | All students have access to a Microsoft Dynamics Business Central sandbox. |
| **Training materials** | W01 - Business Central Dataset.pptx  A local installation of Microsoft Business Central  SQL Server Management Studio |
| **Objective** | After this module the students can explain the basics of the Business Central dataset. They can identify the tables that they need to create reports. |

## Pre training

Getting started with ForNAV in the cloud:  
<https://www.youtube.com/watch?v=fMWN39dSCkk&list=PLtpjnuA-F0c9bZf3emvhz86-S1uX0a0II&index=2&t=0s>

Get started with Business Central and Sandbox:  
<https://docs.microsoft.com/en-us/dynamics365/business-central/dev-itpro/developer/devenv-get-started-container-sandbox>

## Reflection

Duration: 10 min

Check if everyone did the pre training. Look back on that to check if it is all clear.

## Preparation

Duration: 45 min

### PowerPoint presentation.

* Logical and Physical Database
* Tables
* Pages
* Reports
* Extensions
* Posting Routines

### Get started with Business Central and ForNAV

Demonstrate using the Business Central Sandbox, installing the ForNAV extension and setting it up.

## Execution

Duration: Homework

* Create a Business Central sandbox;
* Setup ForNAV on your system;
* Get the ForNAV Business Central app downloaded on your sandbox;
* Install the training extension on your sandbox;
* Run a few ForNAV reports.

# W02 – Basics of the designer

|  |  |
| --- | --- |
| **Level** | Basic |
| **Duration** | 60 min |
| **Instructor participation** | High |
| **Training approach** | Webinar + homework |
| **Prerequisites** | All students have access to a Microsoft Dynamics Business Central sandbox with the Reports ForNAV core, Report Pack, and training extensions installed on it. |
|  | All students have the latest version of Reports ForNAV installed. |
| **Training materials** | ForNAV Aps\_W00 - Training Extension\_14.0.0.0.app  Business Central Sandbox  The ForNAV designer  W02 - Basics of the Designer.pptx  W02 - Cheat Sheet.docx  W02 - Customer Top 10 Layout.docx |
| **Objective** | After this module the students can create basic report layouts. |

## Pre training

Do the Exercise from module W01.

## Reflection

Duration: 10 min

Check if everyone did the pretraining. Look back on that to check if it is all clear.

## Preparation

Duration: 45 min

### Editing ForNAV reports

1. Explain how custom layout is used by ForNAV;
2. Explain Report selection;
3. Create a custom layout from a standard ForNAV report.

### Fundamentals of the ForNAV Designer

(Use the Customer top 10, report 89000)

Demonstrate:

1. Go to the page ForNAV Reports.
2. Select the report 89000 and click Run. Select “Open Designer”.
3. Preview the object from the Designer.
4. Go to the Records option in the report properties and demo how ForNAV gets information from tables.
5. Go to the OnPreReport trigger and show how to get tables using the JavaScript code. Mention the advanced JavaScript module in the training.

Start the creation of the Customer Top 10 list. Demonstrate.

1. Add a table to the body part with the fields No. Name, Address, and Balance (LCY);
2. Space the columns;
3. Add the background color Gainesboro to the odd rows;
4. Add a table with the captions for the No., Name, Address, and Balance (LCY) fields and add this to the Header part;
5. Space these columns the same as the body table;
6. Add all borders to the header table, make text bold and text size 8;
7. Add the Address Fieldgroup and add it to the address column in the body. Demo how ForNAV creates Fieldgroups;
8. Set the Can Grow property on the Address field to true;
9. Set the Text Alignment property of the Address field to Top Left;
10. Sort Customers with the highest balance first, go to the properties of the list, go to Data Item Table View. Sort Descending on the field Balance (LCY);
11. Only display the first ten records. Set Max Iteration to 10;
12. Add a payment terms column between the Address and the Balance (LCY);
13. Demo the use of the payment terms description instead of the payment terms code. Use the Field Lookup for this;
14. Demo what will happen if there is an error. Change the name field to something that does not exist.

### Explain Multilanguage principles

Preview the customer top ten report and select a different language from the report request page. Ask the students what they notice. Note that there are some fields that are translated and some that are not. Explain the translation options in ForNAV reports:

1. Field Captions and Text Constants in Dynamics NAV.
2. CurrReport Standard Captions;
3. Multilanguage Label texts;

### Charts and Sparklines

Explain the concept of Data Tables. Demonstrate the creation of the Data Table by creating a Data Table on the Customer Data Item of the Customer top 10 report. Add just the Balance (LCY) field to the Data Table. Display the result of the Data Table in a sparkline with type of bar in the body section of the customer.

Running this report will show that the Data Table is filled while the report iterates through the Data Table.

Next place the sparkline in a new footer called Chart. Display the results. Explain that the Data Table is filled after the iteration through the Data Table and that the chart can be displayed.

Finally delete the sparkline and add a chart.

1. Add the field Customer.Name and Customer.Sales (LCY) to the Data Table;
2. Add a chart and select the basic Bar type and click finish;
3. In the properties of the Chart set the Data Member to the Data Table;
4. Set the Series Data Member to No;
5. Drill down into the Series Collection property;
6. For Series 1 select the properties tab, expand the Value Data Members and set the Value property to Balance\_LCY;
7. Set the Argument Scale Type to Qualitative;
8. Repeat for Series 2, set that to Sales\_LCY with the same Argument Scale Type;
9. Save and preview the report.

### Concluding Demo: Export the layout and import it in report 89001 “W02 Vendor Top 10”.

## Execution

Duration: Homework

1. Create the Customer top 10 report from Report 89000, W02 Customer Top 10;
2. Add a bar Chart to this report. Point to the Charts video;
3. Export the layout you created and import it for report 89001, W02 Vendor Top 10.

# W03 - Advanced ForNAV Designer

|  |  |
| --- | --- |
| **Level** | Intermediate |
| **Duration** | 60 min |
| **Instructor participation** | High |
| **Training approach** | Webinar + homework |
| **Prerequisites** | All students have access to a Microsoft Dynamics Business Central sandbox with the Reports ForNAV core, Report Pack, and training extensions installed on it. |
|  | All students have the latest version of Reports ForNAV installed. |
| **Training materials** | ForNAV Aps\_W00 - Training Extension\_14.0.0.0.app  Business Central Sandbox  The ForNAV designer  W03 - Advanced ForNAV Designer.pptx  W03 - Cheat Sheet.docx  W03 - Advanced ForNAV Designer Layout.docx |
| **Objective** | After this module the students can create advanced layouts that include multiple sections. |

## Pre training

Do the Exercise from module W02.

## Reflection

Duration: 10 min

Check if everyone did the pretraining. Look back on that to check if it is all clear.

## Preparation

Duration: 45 min

Use sales invoice 89005 for these demonstrations.

### Sections

Explain sections by creating the VAT sections on a sales invoice. When that is done create the header and footer sections for the Line DataItem. Also rename all the existing sections.

### Getting data from tables, using Images

Add a logo on a sales invoice. Get the logo from the ForNAV setup.

### Address fields and field groups

Add an address field to a sales invoice header. Make the address field resize automatically.

### Transheaders and -footers

On a sales invoice add a transheader and -footer.

### Group headers and footers

Add a group header and footer to the lines section so you get a separate group per sales line type.

### Templates

Demonstrate what happens when you use templates by using the ForNAV Sales Template and Sales Invoice reports.

## Execution

Duration: Homework

Using report 89005, W03 Sales Invoice:

* Add a logo to the report;
* Add an address field for the customer;
* Add company Information to the footer;
* Add a Header and a Footer to the line Data Item;
* Add a group header and footer to the line data item;
* Go nuts! Make the report as cool as you can!

# W04 - JavaScript Deep Dive

|  |  |
| --- | --- |
| **Level** | Intermediate |
| **Duration** | 60 min |
| **Instructor participation** | High |
| **Training approach** | Webinar + homework |
| **Prerequisites** | All students have access to a Microsoft Dynamics Business Central sandbox with the Reports ForNAV core, Report Pack, and training extensions installed on it. |
|  | All students have the latest version of Reports ForNAV installed. |
| **Training materials** | ForNAV Aps\_W00 - Training Extension\_14.0.0.0.app  Business Central Sandbox  The ForNAV designer  W04 - AL functions in JavaScript.docx  W04 - Cheat Sheet.docx  W04 - JavaScript Deep Dive.pptx  W04 - PrintFunction.txt |
|  | [Working with JavaScript in the ForNAV Designer YouTube](https://www.youtube.com/watch?v=4cwbxUq-tc8&t=0s&index=11&list=PLtpjnuA-F0c9bZf3emvhz86-S1uX0a0II) |
| **Objective** | At the end of this module students can use JavaScript to get data from Business Central, format text boxes, and show or hide sections and other parts. |

## Pre training

Do the Exercise from module W03.

Learn JavaScript in one video:  
<https://www.youtube.com/watch?v=fju9ii8YsGs>

## Reflection

Duration: 10 min

Check if everyone did the pretraining. Look back on that to check if it is all clear.

## Preparation

Duration: 45 min

### JavaScript theory and background

Use the PowerPoint to explain the key JavaScript concepts

### Change the color of a Text Box based on an expression

Use the CurrControl.ForeColor property in an OnPrint property to change the color of a text box based on a JavaScript expression.

### Only add the logo and the footer when the invoice is not printed on preprinted paper

### Use group headers to display a different header for comment lines

Add an extra groupheader and -footer and only display those for lines of Type Item. Only display the existing groupheader and -footer for other types of line. Use a function and not a variable for this.

## Execution

Duration: Homework

* Make the Invoice total amount red when the amount is over €7000;
* Only add the logo and the footer when the invoice is not printed on preprinted paper;
* Get the previous invoice no. the customer had and add that to the header;
* Use group headers to display a different header for comment lines;
* Create a different LineBody for comment lines.

# W05 – Creating Extensions

|  |  |
| --- | --- |
| **Level** | Advanced |
| **Duration** | 60 min |
| **Instructor participation** | High |
| **Training approach** | Webinar + homework |
| **Prerequisites** | All students have access to a Microsoft Dynamics Business Central sandbox with the Reports ForNAV core, Report Pack, and training extensions installed on it. |
|  | All students have the latest version of Reports ForNAV installed.  All students have Visual Studio Code installed with the AL Language plugin. |
| **Training materials** | ForNAV Aps\_W00 - Training Extension\_14.0.0.0.app  Business Central Sandbox  The ForNAV designer  Visual Studio Code with the AL Language plugin  The ForNAV Report Pack Extension downloaded to a folder  W05 - Creating Extensions.pptx  W05 - Cheat Sheet.docx  W05 – Extension  W05 - Extension OnPrem  W05 - AL Code to add.txt |
| **Objective** | At the end of this module students can create a Business Central extension with copied and new reports. |

## Pre Training

Install Visual Studio Code on your system. Watch a video that will help preparing

<https://www.youtube.com/watch?v=pXaSsDjIwBE>

## Reflection

Duration: 10 min

Discuss the Pre Training prep. Make sure everyone understands it and is ready to go. If necessary discuss the homework assignment from W04 – JavaScript Deep Dive.

## Preparation

Duration: 45 min

### Extensions

Explain the way extensions work using the PowerPoint.

### Creating a new extension

Use the ForNAV designer to create a new extension. Open the extension with Visual Studio Code and add all the necessary parts to get the extension published.

* Update the app.json;
  + Add a dependency on the ForNAV Report Pack;
* Download Symbols.

### Copying a report

Open Report 6188571 "ForNAV VAT Purchase Order" from the report pack in the ForNAV designer. Change the Object No to 55010 and the Object Name to ForNAV VAT Purch Order Track. Save the report to your new extension. Make some layout changes.

In VS Code change the Report Caption and add an applicationarea and usagecategory.. Run though the report in VS Code, be sure to mention the dataset, the touchable and the untouchable code and publish the extension.

Demonstrate the report shows up in the ForNAV Reports page. Explain the report shows up in this page because the Object Name starts with ForNAV.

### Creating a new report

Create a new report based on the List Template. Change the Object No to 55020 and the Object Name to ForNAV Cust Top 10 Open Orders. Add Calcfields for Balance (LCY) and Sales (LCY). Save the report to your extension.

Open the report in VS Code and add a caption and add an applicationarea and usagecategory to the report. Replace the Layout docx file with the layout that was exported in W02 (W02 - Customer Top 10 Layout.docx). Rename that document so the filename matches the WordLayout filename in the report.

Publish the extension. Bonus points for creating a page extension that will call this new report from the Customer Card

### Editing Datasets

Open the List Report you just created in the ForNAV designer. Add the Sales Header table to the dataset and add the necessary Data Item Link. Add a Header and a Body section to the new DataItem.

Save the report and open it in VS Code. Explain the changes. Publish the extension and test the report.

### Adding a temporary table to a report

Open the Purchase Order report that you just created in the ForNAV designer. Add the "Tracking Specification" table to the dataset and make it temporary. Add a body section to this Data Item and add the ItemNo, SerialNo, and LotNo fields.

Open the report in VS Code and the code to populate the temporary table. Explain the CodeUnit that is used for this.

## Execution

Duration: Homework

Students will complete the exercises in their own time.

* Create a new extension from the ForNAV designer;
* Create a new Sales Order report from a Header Line template;
* Adding a temporary "Tracking Specification" table to the report. Write code to populate it;
* Add a button on the Sales Order Card to run the new report.

## Reflection

Since this is the last module in the series there won’t be a reflection moment. Encourage the students to create extensions and to share them ad ask any questions via e-mail.

# Module name

|  |  |
| --- | --- |
| **Level** |  |
| **Duration** |  |
| **Instructor participation** |  |
| **Training approach** |  |
| **Prerequisites** | All students have access to an installation of Dynamics NAV 2018 with the Cronus Database with a developer license. |
|  | All students have the ForNAV designer installed in the same environment. |
| **Training materials** |  |
|  |  |
|  |  |
| **Objective** |  |

## Preparation

*What are we going to do*

Duration:

## Execution

*Students will do it*

Duration:

## Reflection

*What did we just do, what are the results.*

Duration: