

business data integration
web access
customer / vendor self service
field force – sales and service



A dynamic web client for Microsoft Dynamics NAV 2009x

Features & Facts

Whitepaper

April 2011



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INTRODUCTION

MindQuad Solutions Private Limited, a Microsoft Dynamics NAV Partner based in Ahmedabad, India has launched NAV|Lite™, a web client for Microsoft Dynamics NAV 2009x. This sophisticated web client uses web services to render native functionalities and business logic from Microsoft Dynamics NAV. The application, being developed since September 2010, had been tested on most popular web browsers like Internet Explorer, Mozilla Firefox, Google Chrome, Safari and Opera. NAV|Lite™ went 'Live' on March 2011 along with the successful implementation of Microsoft Dynamics NAV 2009 SP1 at a battery manufacturing company in India.

What is NAV|Lite™ ?

NAV|Lite™ is pure play web interface for Microsoft Dynamics NAV 2009x running on compatible internet browsers listed elsewhere in this document. As the name suggests it is a "Light" application and it only needs the built-in functionalities of a web browser and there is nothing lighter than a web browser on a computer! NAV|Lite™ does not require external dependencies like frameworks, runtimes, Silverlight, flash and java add-ons, etc. pre-installed on client computers. Its primary objective is to provide web access to NAV 2009 functionality irrespective of whether it is native or customized. This makes NAV|Lite™ a truly "generic" window for accessing NAV 2009 business logic and data on the web – *anytime.....anywhere!*

The business case for NAV|Lite™ and Microsoft Dynamics NAV's SOA (Service Oriented Architecture)

Businesses need to connect processes, people, and information within and across organizational boundaries. The free flow of information across the organization is a key business need. People are at the heart of any business. The degree to which the Microsoft Dynamics NAV solution architecture enables them to connect with the information they need and to the actions they must take is key to realizing greater success with the solution. Most customers experience limited success and satisfaction from their enterprise solution as they have a restricted deployment covering few core users within their organizations. There are large groups of users who require occasional or repetitive access to limited functionality but business owners cannot afford to invest in full access licenses for such user groups. The enterprise solution does not become pervasive thus impeding the information flow and decreasing worker productivity. What is needed is a cost-effective way to bring functionality to those user groups who only use certain features in Microsoft Dynamics NAV, without requiring them to buy full access licenses.

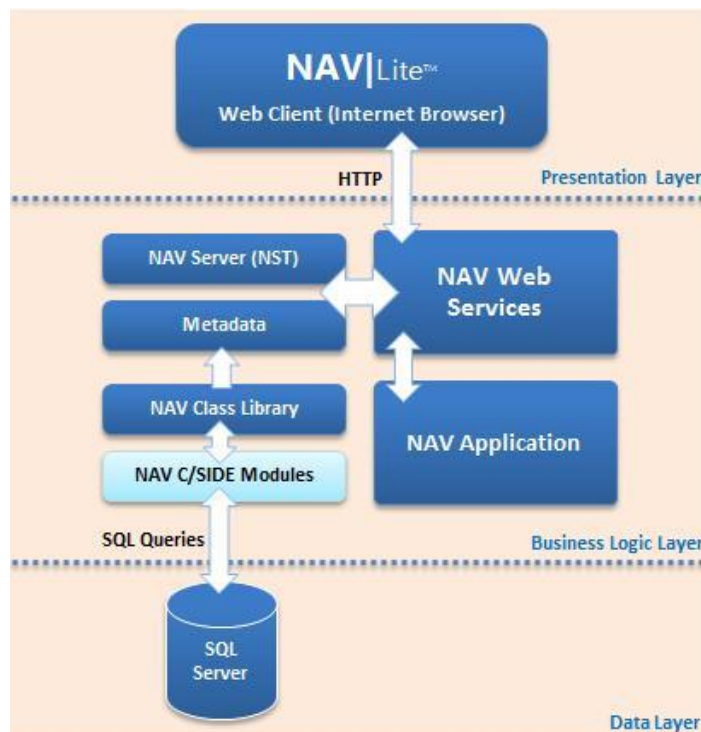
Web services are a standard widely used method for integrating applications and are supported in Microsoft Dynamics NAV 2009. By implementing web services, you can access NAV 2009 business logic and data from outside the product in a standard, secure way. The exposed services and composed processes can deliver business value only when they connect people with their work from anywhere and at any time.

NAV|Lite™ leverages the Service Oriented Architecture (SOA) of Microsoft Dynamics NAV 2009 coupled with the "Light User" licensing to deliver a truly affordable alternative to accessing the ERP for those users who require occasional or repetitive access to limited functionality in Microsoft Dynamics NAV. The prime examples are management users who require only viewing reports or giving approvals, field sales and service personnel using devices like mobiles, tablets or netbooks where only internet access and browsers are available. A truck driver, delivering goods could view and post shipments from his mobile device and directly update inventory records in Microsoft Dynamics NAV. The inventory records get updated real-time and the truck driver does not have to return to the office to provide information on delivered goods.

With NAV|Lite™ the time-to-value is much more immediate because its pragmatic approach of seamlessly integrating using the SOA does not require a complete overhaul of existing ERP implementation and configured business processes. The deployment is rapid and there is almost-zero user learning curve.

Access rights authorizations and validations, input data validations, business logic invocation, concurrency management are all managed in the same way as they are from a classic or role tailored client. NAV|Lite™ maintains the integrity of your ERP data by not replicating codes that validates business data or invoking business logic on its own. The 3-Tier architecture in Microsoft Dynamics NAV 2009x provides a new 'Service Tier' (middle tier) that executes the business logic. NAV|Lite™ (1st Tier) connects to this Service Tier for business logic and if the logic needs data then the Service tier goes to the database (3rd tier). NAV|Lite™ just allows you to:

- Connect into what is already provided.
- Extract more value from what is already there. Enable existing Microsoft Dynamics NAV implementation to be used in new ways.
- Extend and evolve what you already have.



The 'Can & Cannot' of NAV|Lite™ can be summed up in the following points:

1. Can automatically render most NAV 2009 functionality where web services are published.
2. Cannot automatically render certain functionality but still possible with few additional lines of C/SIDE code.
3. Will never be able to render certain functionality.

Following is the detailed explanation of NAV|Lite™ capabilities and limitations.

CAPABILITIES OF NAV|LITE™

NAV|Lite™ supports most functionality that is available in NAV 2009 RoleTailored Client. The following is the list of NAV|Lite™ capabilities:

Completely 'web-based' experience – NAV|Lite™ can be accessed from any location and from any device which runs a graphical web browser. Based on availability of all pre-requisites, NAV|Lite™ can be installed and put operational in a couple hours. For existing NAV 2009 customers, the ROI starts from the moment of installation and deployment.

The User Experience – The User Interface (UI) almost resemble the RoleTailored Client, which means that end-users do not have to re-learn usage practices. The user adoption of NAV|Lite™ is immediate and therefore its time-to-value.

Authorization & Access Control – NAV|Lite™ users are setup in Microsoft Dynamics NAV 2009 RTC and while accessing through NAV|Lite™ the users are validated using integrated Windows Authentication. However, NTLM and SSL authentication can also be used. After the user login, NAV|Lite™ renders the home page which is similar to a Role Center. The menu links, access rights are dynamically and automatically applied from the standard NAV 2009 security.

Handle Common Operations – NAV|Lite™ is primarily targeted to enable users perform basic, but routine operations such as, creating, reading, updating, and deleting records (known as **CRUD**). Some examples to show the possible usage:

- **Purchasing** (Items, Vendors, Purchase Requisitions, Quotes, Purchase Orders, Credit Memos, Return Orders)
- **Sales** (Items, Customers, Quotes, Sales Orders, Return Orders, Credit Memos)
- **Marketing** (Contacts, Teams, Sales People, Campaigns)
- **Warehousing** (Items, Customers, Vendors, Gate Entries, Receipts and Shipments, Location Transfers, Pick and Put-away)
- **Service Management** (Service Items, Contacts, Customers, Loaners, Quotes, Orders, Credit Memos, Service Tasks, Dispatch Board)
- **Jobs & Resources** (Jobs, Resource, Groups)
- **Human Resources** (Employees, Absence Registrations)
- **Manufacturing** (Items, Production BOMs, Routings, Families, Production Orders, Capacities)
- **Financial Management** (Chart of Accounts, G/L Account Card, Fixed Asset, Insurance)
- **Limited B2B** (*implemented in accordance with External Connector licensing*)
Vendors (submit Quotes, view PO's, view Payables, view Memos)
Customers (view Quotes, submit SO's, view Shipments, view Receivables, view Invoices, view Memos)

All Cards, Documents, Lists, List+ type objects are rendered automatically with complete validations, business rules and processing logic.

All links in the "Related Information" of the Action Pane are automatically available.

Handle Complex Operations – Some users though, need more from their interface such as Release/Reopen, Posting and Printing Documents and Posting Journals. NAV|Lite™ is capable of handling these operations too. Few examples below:

- **Purchasing** (Release/Reopen, Post & Print, Requisition Worksheets, Journals, Approval Entries)
- **Sales** (Approval Entries)
- **Warehousing** (Pick, Put-away, Movement Worksheets, Journals)
- **Jobs & Resources** (Jobs and Resource Journals)
- **Manufacturing** (Journals, Standard Cost Worksheets)
- **Financial Management** (Journals and Vouchers)

More advanced users would need operating links from "Action Items" on the Action Pane. Most "Action Items" links are not rendered automatically but can be made accessible on NAV|Lite™ by writing few lines of C/SIDE code individually for each link.

Handle Customizations – All customizations on the RTC Pages and codeunits (excluding those covered in Limitations below) are understood by NAV|Lite™ and rendered on the web page.

NAV|Lite™ can also render 3rd party add-ons (RTC) provided their page / codeunit web services are exposed and there are no items which are covered in Limitations below.

Browser Compatibility –NAV|Lite™ has been successfully tested on current versions of all popular browsers; Internet Explorer, Firefox Mozilla, Google Chrome, Opera and Safari. The performance cannot be guaranteed on older versions of these browsers.

Multi-Language – NAV|Lite™ is multi-language enabled and the language option is available at the user login screen.

Error Messages – NAV|Lite™ renders standard NAV 2009 error messages. This makes it truly a pure web services client.

Reports – NAV|Lite™ renders standard NAV 2009 reports which pass a single parameter, for e.g. Order Confirmation, Work Order.

LIMITATIONS OF NAV|LITE™

Reports – NAV|Lite™ cannot render Reports that run from a request page for e.g. Customer Aging. Such reports can be made available automatically provided that pre-defined filters have been used on the Role Tailored Page.

Certain Drill-Downs – Any actions which are executed through a C/SIDE code will not be available automatically on NAV|Lite™ but could be individually customized, for e.g. in Item Card → Invoicing tab → Standard Cost field. Here the drill down is executed through a C/SIDE code on the Item Card page, which will not be available on the web client automatically.

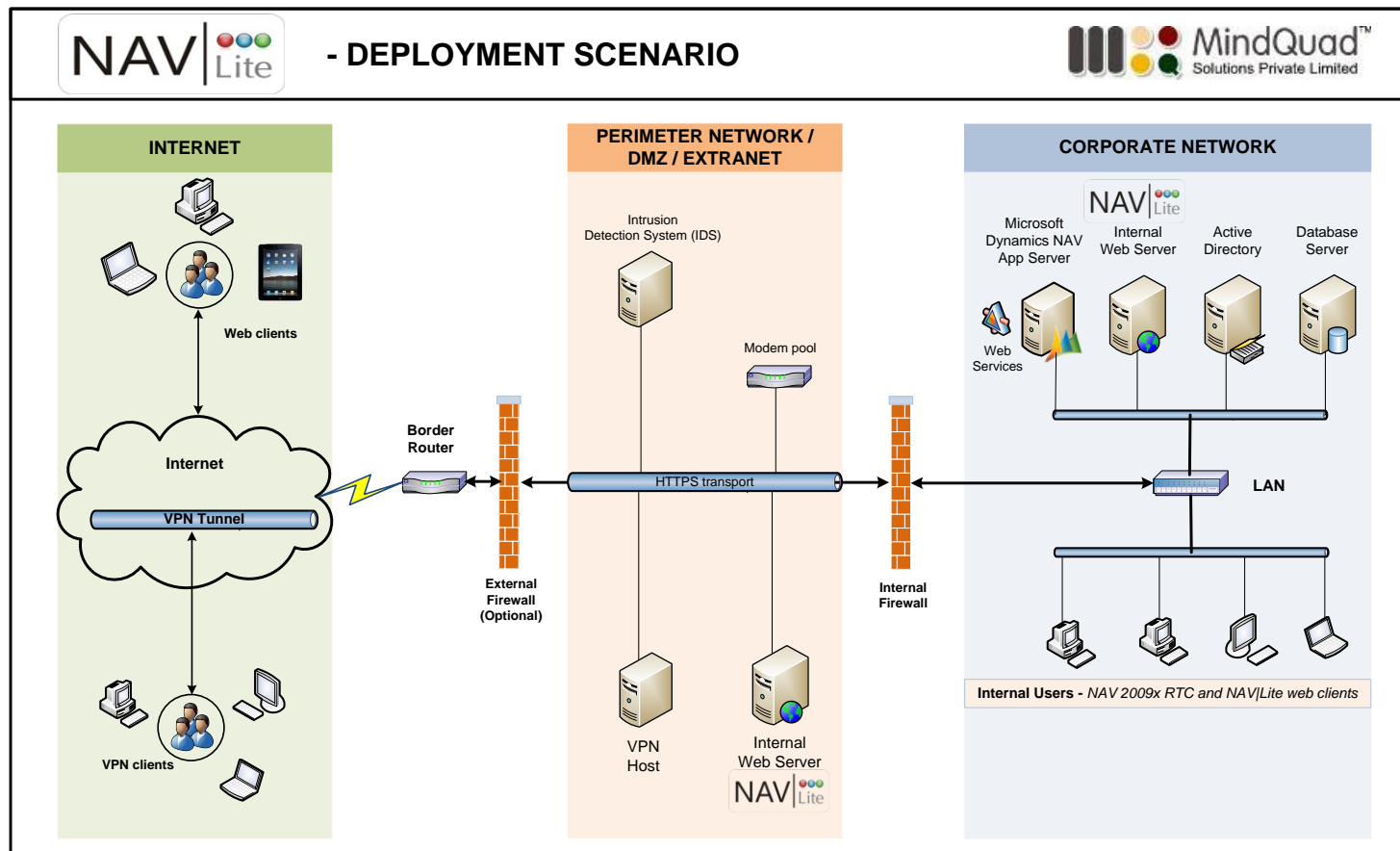
Matrix Pages – NAV|Lite™ cannot render matrix pages, for e.g. Analysis by Dimension. Such pages will have to be customized independently and that too with limited functionality only.

Non-Compatible objects – NAV|Lite™ cannot work with Confirmation Dialog boxes, Navigate page, System Part, Chart Part, NotesPart, Record Links, Wizards and Pages that displays information calculated or inserted from variables or temporary tables.

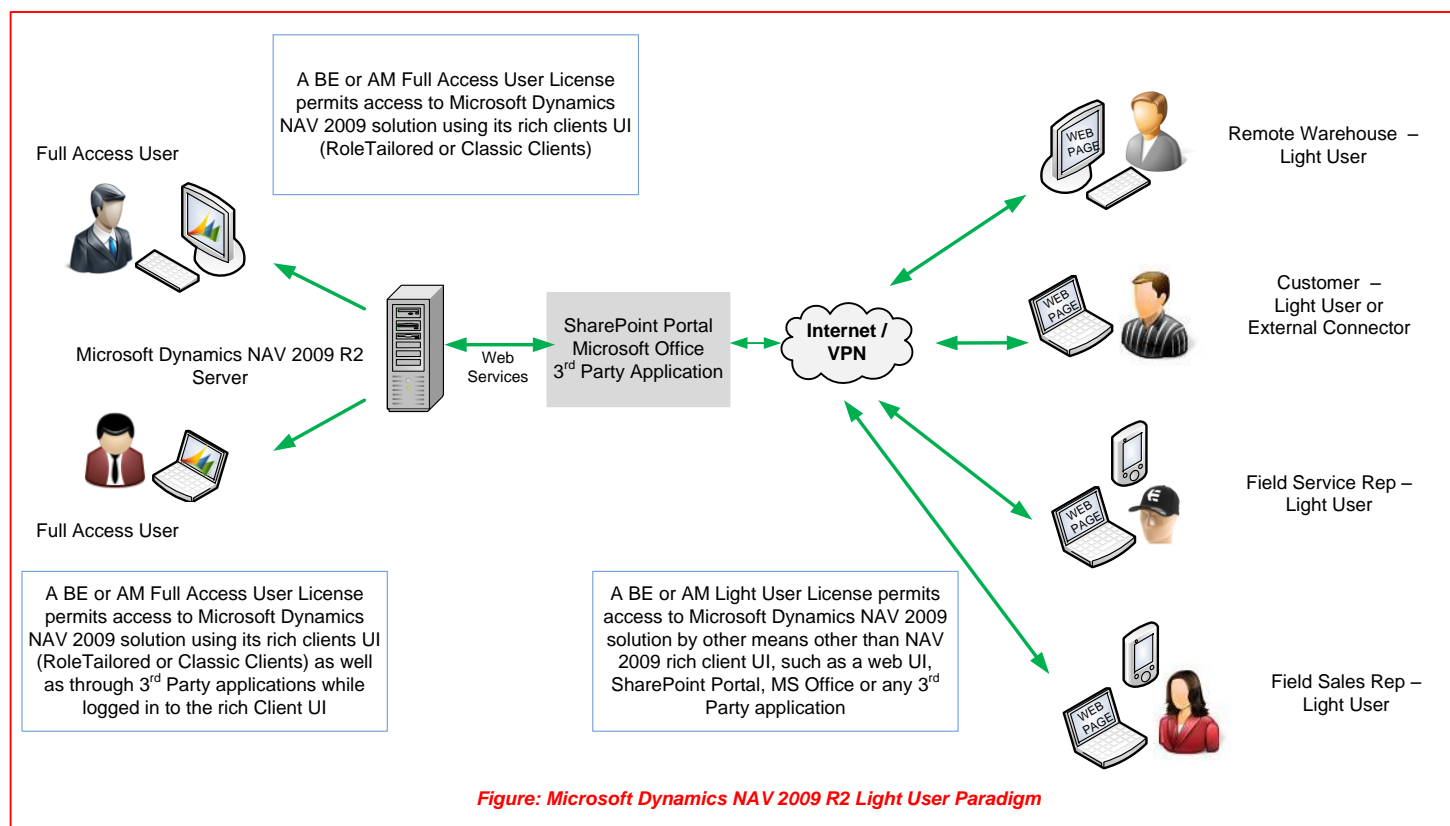
Action Pane – NAV|Lite™ cannot automatically render links in “Action Items” for all pages. However, those links could be selectively made available by writing few lines of C/SIDE code.

Automation objects – NAV|Lite™ cannot render any functionality that is supported through any automation controls.

NAV|LITE™ DEPLOYMENT – (EXAMPLE)



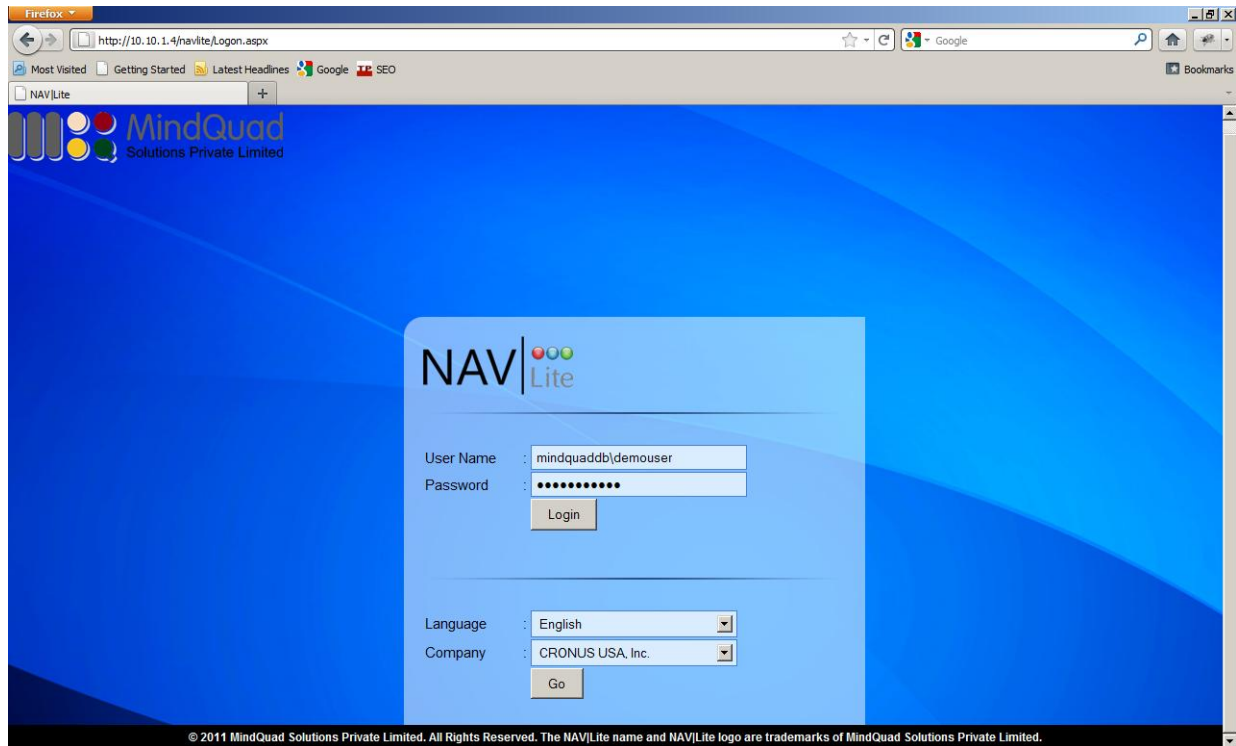
NAV|LITE™ - LIGHT USER LICENSING PARADIGM

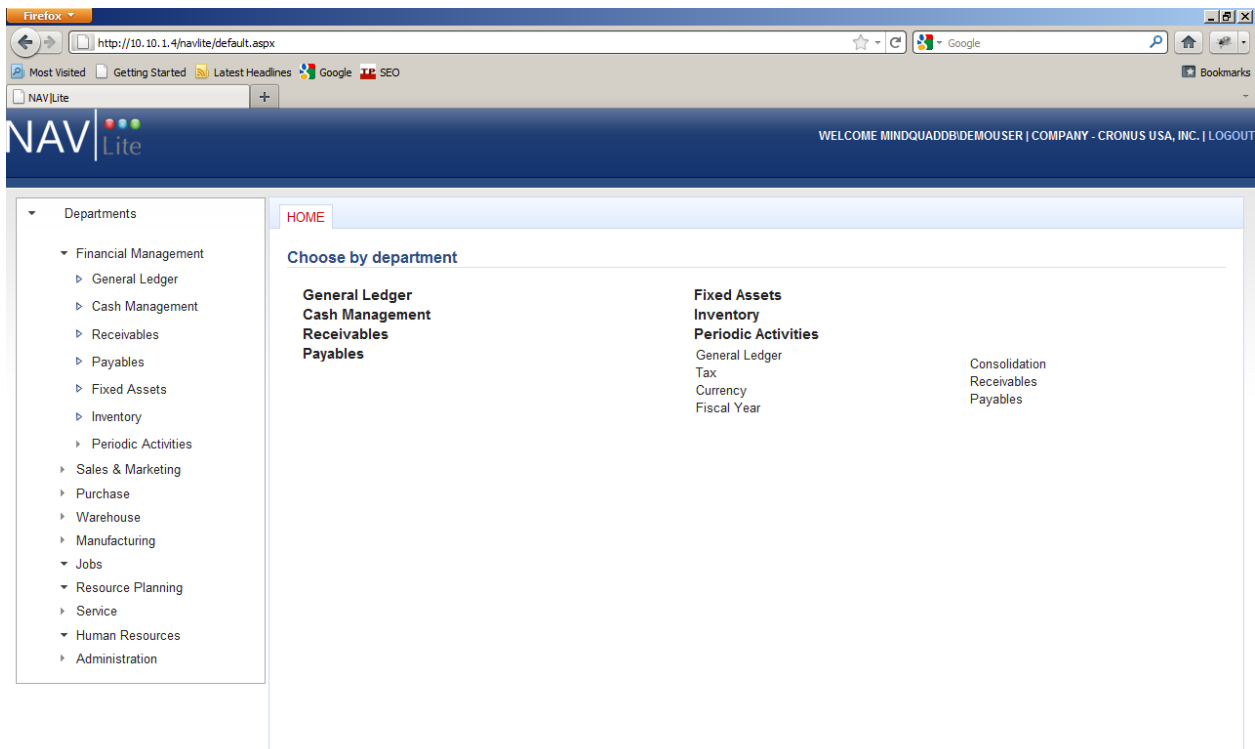


NAV|LITE™ - PRE-REQUISITES

- The Microsoft Dynamics NAV 2009 SP1 or R2 solution must be deployed on Microsoft SQL Server 2005/2008
- Installed free Microsoft SQL Server Compact 3.5/4.0
- Installed Microsoft .Net Framework 4.0 on the server earmarked for NAV|Lite™ deployment
- IIS 7.0 installed and running on the server earmarked for NAV|Lite™ deployment
- Additional Forms & Pages – 3 units
- Additional Codeunits – 5 units
- The number of Forms, Pages and Codeunits would increase in case of extensive customizations

NAV|LITE™ - SCREENSHOTS





Firefox | http://10.10.1.4/navlite/default.aspx

NAV|Lite

WELCOME MINDQUADDB/DEMOUSER | COMPANY - CRONUS USA, INC. | LOGOUT

Departments

- Financial Management
 - General Ledger
 - Cash Management
 - Receivables
 - Payables
 - Fixed Assets
 - Inventory
 - Periodic Activities
- Sales & Marketing
- Purchase
- Warehouse
- Manufacturing
- Jobs
- Resource Planning
- Service
- Human Resources
- Administration

HOME | CHART OF ACCOUNTS

Related Information | Action Items | Reports

No Filter Applied.

No.	Name	Income/Balance	Account Type	Totaling	Gen. Posting Type	Gen. Bus. Posting	Gen. Prod. Postin	Net Change	Balance
1	10000	ASSETS	Balance_Sheet	Begin_Total	_blank_			0	0
2	11000	Current Assets	Balance_Sheet	Begin_Total	_blank_			0	0
3	11100	Liquid Assets	Balance_Sheet	Begin_Total	_blank_			0	0
4	11200	Cash	Balance_Sheet	Posting				306.64	306.64
5	11400	Bank, Checking	Balance_Sheet	Posting				4386.79	4386.79
6	11500	Bank Currencies	Balance_Sheet	Posting				10886.31	10886.31
7	11600	Bank Operations	Balance_Sheet	Posting				405032.77	405032.77
8	11700	Liquid Assets, Tot	Balance_Sheet	End_Total	_blank_			420612.51	420612.51
9	12000	Securities	Balance_Sheet	Begin_Total	_blank_			0	0
10	12100	Bonds	Balance_Sheet	Posting				18278.46	18278.46
11	12200	Other Marketable	Balance_Sheet	Posting				0	0
12	12300	Securities, Total	Balance_Sheet	End_Total	_blank_			18278.46	18278.46
13	13000	Accounts Receivable	Balance_Sheet	Begin_Total	_blank_			0	0
14	13100	Customers Domes	Balance_Sheet	Posting				946042.71	946042.71
15	13200	Customers, Foreign	Balance_Sheet	Posting				404866.46	404866.46
16	13300	Accrued Interest	Balance_Sheet	Posting				57337.2	57337.2
17	13350	Other Receivables	Balance_Sheet	Posting				3129.3	3129.3
18	13400	Accounts Receivable	Balance_Sheet	End_Total	_blank_			1411375.67	1411375.67

Page 1 of 10

Firefox | http://10.10.1.4/navlite/default.aspx

NAV|Lite

WELCOME MINDQUADDB/DEMOUSER | COMPANY - CRONUS USA, INC. | LOGOUT

Departments

- Financial Management
- Sales & Marketing
- Purchase
 - Planning
 - Order Processing
 - Inventory & Costing
- Warehouse
- Manufacturing
- Jobs
- Resource Planning
- Service
- Human Resources
- Administration

HOME | CHART OF ACCOUNTS | ITEMS

Related Information | Action Items | Reports

No Filter Applied.

No.	Description	Substitutes Exis	Production BOM	Routing No.	Base Unit of Me	Cost is Adjuste	Unit Cost	Unit Price	Vendor No.	Search Descr
1	1000	Bicycle	False	1000	1000	PCS	False	350.595	4000	
2	1001	Touring Bicycle	False	1000	1000	PCS	True	350.595	4000	
3	1100	Front Wheel	False	1100	1100	PCS	False	129.671	1000	20000
4	1110	Rim-op	False			PCS	True	1.05	0	01587796
5	1120	Spokes	False			PCS	True	2	0	01587796
6	1150	Front Hub	False	1150	1150	PCS	True	12.441	500	
7	1151	Axle Front Whee	False			PCS	True	0.45	0	32456123
8	1155	Socket Front	False			PCS	True	0.77	0	32456123
9	1160	Tire	False			PCS	True	1.23	0	01587796
10	1170	Tube	False			PCS	True	1.75	0	01587796
11	1200	Back Wheel	False	1200	1200	PCS	False	129.682	1200	
12	1250	Back Hub	False	1250	1150	PCS	True	12.452	1100	
13	1251	Axle Back Whee	False			PCS	True	0.33	0	01587796
14	1255	Socket Back	False			PCS	True	0.9	0	01587796
15	1300	Chain Assy	False	1300		PCS	False	13.157	800	
16	1310	Chain	False			PCS	True	1.99	0	32456123
17	1320	Chain Wheel Fro	False			PCS	True	4.66	0	32456123
18	1330	Chain Wheel Rat	False			PCS	True	5.88	0	32456123

Page 1 of 8

Item Card - 1000 - Bicycle - Mozilla Firefox

http://10.10.1.4/navlite/ViewCard.aspx?keyid=^1000^&id=30

RelatedInformation | ActionItems | Reports

General

No.	1000	Qty. on Purch. Order	0
Description	Bicycle	Qty. on Prod. Order	44
Base Unit of Measure	PCS	Qty. on Component Lines	0
Shelf No.	S5	Qty. on Sales Order	615
Automatic Ext. Text	<input type="checkbox"/>	Qty. on Kit Sales Lines	0
Created From Nonstock Item	<input type="checkbox"/>	Qty. on Service Order	0
Item Category Code	MISC	Service Item Group	
Product Group Code		Blocked	<input type="checkbox"/>
Search Description	BICYCLE	Last Date Modified	04/12/2011
Quantity on Hand	32		

Invoicing

Replenishment

Planning

Foreign Trade

Item Tracking

E - Commerce

Warehouse

Kitting

http://10.10.1.4/navlite/ViewCard.aspx?keyid=^1000^&id=30

RelatedInformation | ActionItems | Reports

General

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Created From Nonstock Item	<input type="checkbox"/>	Qty. on Service Order	0
Item Category Code	MISC	Service Item Group	
Product Group Code		Blocked	<input type="checkbox"/>
Search Description	BICYCLE	Last Date Modified	04/12/2011
Quantity on Hand	32		

Invoicing

Costing Method	Standard	Unit Price	4000
Cost is Adjusted	<input type="checkbox"/>	Gen. Prod. Posting Group	RETAIL
Cost is Posted to G/L	<input checked="" type="checkbox"/>	Tax Prod. Posting Group	
Standard Cost	350.595	Inventory Posting Group	FINISHED
Unit Cost	350.595	Net Invoiced Qty.	0
Overhead Rate	0	Allow Invoice Disc.	<input checked="" type="checkbox"/>
Indirect Cost %	0	Item Disc. Group	A
Last Direct Cost	0	Sales Unit of Measure	PCS
Price/Profit Calculation	Profit=Price-Cost	Tax Group Code	
Profit %	91.23513		

Replenishment

Purchase		Production	
Vendor No.		Manufacturing Policy	Make-to-Stock
Vendor Item		Routing No.	1000
		Production BOM	1000

Sales Order - 101016 - The Cannon Group PLC - Mozilla Firefox

http://10.10.1.4/navlite/ViewCard.aspx?keyid=^Order^101016^&id=42

Related Information Action Items Reports

General

No.	101016	Order Date	01/27/2011
Sell-to Customer No.	10000	Document Date	01/27/2011
Sell-to Contact No.		Requested Delivery Date	
Sell-to Customer Name	The Cannon Group PLC	Promised Delivery Date	
Sell-to Address	192 Market Square	Quote No.	
Sell-to Address 2		External Document No.	
Sell-to City	Atlanta	Salesperson Code	PS
Sell-to State	GA	Campaign No.	
Sell-to ZIP Code	31772	Opportunity No.	
Sell-to Contact	Mr. Andy Teal	Responsibility Center	
No. of Archived Versions	0	Assigned User ID	
Posting Date	02/02/2011	Status	Open

Lines

Type	No.	Description	Location Code	Quantity	Reserved Quantity	Unit of Measure Code	Unit Price	Tax Group
Item	1920-S	ANTWERP Conference Table	RED	1	0	PCS	647.8	FURNITUR
Item	1000	Bicycle	BLUE	5	0	PCS	4000	
Item				0	0		0	

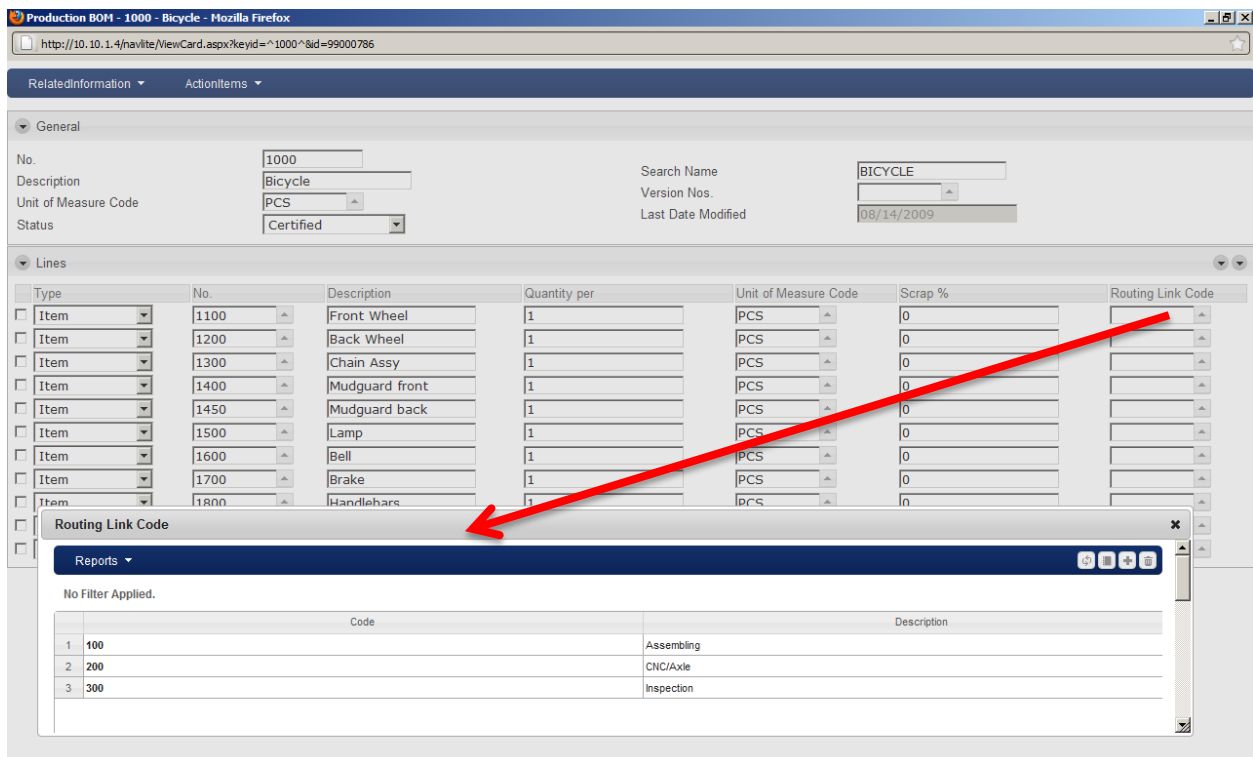
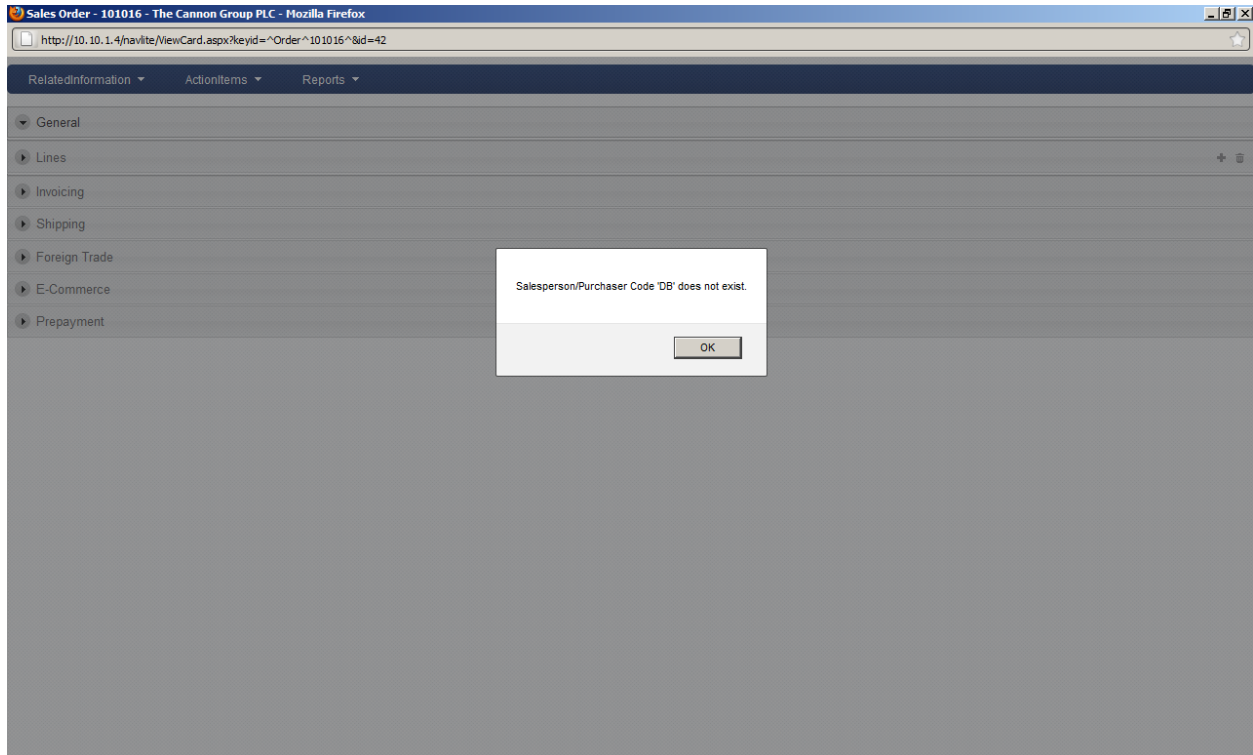
Invoicing

Shipping

Foreign Trade

E-Commerce

Prepayment





A dynamic web client for Microsoft Dynamics NAV

For enquiries, please contact:



203, President Plaza, Near Thaltej Circle,
S. G. Highway, Ahmedabad – 380054. INDIA.

Phones : +91.97253 38891 **or** +91.93777 23253

Email : sales@mindquad.net

Web : <http://www.mindquad.net>



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