LS Omni Server Installation 1.2
Guide for local installation
Connected to LS Retail NAV 7.1
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Revision History

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1 LS Omni Server installation

This document provides you with full instructions you need to install a local instance of the LS Omni Server and how to connect the LS Omni mobile apps to it. It is assumed that LS Nav 7.1 has been installed with the LS Nav web services up and running.

The installation consists of one setup file (LSOmni.Server.Setup.exe) that creates a new SQL Server database (default name is LSOmni), an IIS WCF web service (default name is LSOmniService) and SQL objects in the LS NAV database. These default names are used throughout this installation guide.

2 System Overview

The LS Omni solutions consists of the LSOmniService, a WCF services running under IIS, the LSOmni SQL Server database, LS Nav, and mobile apps/web pages, all of which communicate with the IIS.

2.1 System Requirements


- IIS 7 and above. To install please read IIS Setup and LSOmni.pdf
    - Choose the SQLEXPRADV_x64_ENU.exe and during installation choose Full Text Search in the Feature Selection.
- Note: Full Text Search feature in SQL Server is optional but strongly recommended.
Minimum hardware requirements for the IIS machine:
- 80 GB disk space, depends on LS Nav database size.
- 4 GB RAM

Data Director Version 3.02.20 (LSDataDirector.3.02.20-Install.exe can be downloaded from the partner portal).

3 Installation

3.1 Before starting the installation
The installation process requires the following information:
- SQL Server instance (for example, mySqlServer or mySqlServer\MSSQLSERVER)
  - The LSOmni database is created on this machine
  - Default collation used is: “COLLATE Latin1_General_CI_AS”. If another collation is to be used then create a new LSOmni database with the required collation in SQL Management Studio. The setup uses existing database.
- LS Nav SQL Server instance (for example, myNavSqlServer\NAVDEMO)
- LS Nav SQL database name (for example, NAV71)
- LS Nav company name (for example, CRONUS LS 71 W1 Demo v16)
- URL to LS Nav web service (http://localhost:7047/DynamicsNAV71/WS/CRONUS LS 71 W1 Demo v16/Codeunit/RetailWebServices)
- A Windows user name and password used for the Windows Authentication against the NAV web service

Make sure the URL to the NAV web service is correct. Enter the URL into your browser, for example http://localhost:7047/DynamicsNAV71/WS/CRONUS LS 71 W1 Demo v16/Codeunit/RetailWebServices
Check that SQL Server is up and running and that **Full Text Search** is enabled. See [Appendix A](#) for more details.

Finally, make sure IIS is up and running. It is a WCF service application so the .svc must be mapped in IIS (in the Handler Mappings). If you are not familiar with IIS, please read the document [IIS setup and LSOmni.pdf](#).

### 3.2 Run the setup program


Run the setup program **LSOmni.Server.Setup.exe**. The setup can be run multiple times but it will override objects in existing LSOmni database and files for the LSOmniService WCF service.

Select all the checkboxes if you plan to use all of the functionality provided by LS Omni Server.
Installation Options:

1. Create LSOmni SQL Server database
   a. Must have SQL Server sysadmin rights to create a new database
   b. Creates a new SQL login: LSOmniUser, password: LSOmniUser

2. Create LS Nav SQL objects
   a. Only used by the Mobile POS and Inventory. Uncheck this if Mobile POS and Mobile Inventory are not needed.

3. Create LSOmniService WCF service under IIS
   a. Must run locally on the IIS machine
   b. Creates a new Web Application called LSOmniService
   c. Creates a new application pool called LSOmniServicePool. The LSOmniService worker process runs under the identity set in this application pool.
The installation setup saves all files by default to C:\\LS Retail\\LSOmni\\LSOmniService, including the SQL scripts that are used. This folder stores log files and the configuration files so remember this folder name. The main configuration files are:

- **AppSettings.config**
  - Stores all the information entered during the setup.
  - You can encrypt the password used for NAV web service authentication in this config file. See Appendix B
- **NLog.config**
  - Controls the details of information logged to the \log\logfile.txt
- **mailSettings.config**
  - Use any SMTP server available. This is used when a password is reset.

### 3.3 After the installation

After a successful installation the next step should be to validate the data entered during the installation.

#### 3.3.1 LSOmniService running under IIS

The LSOmniService web service **MUST** be “pinged” to see if the WCF web service is working properly. First “ping” them from a browser on a laptop (Chrome/Firefox recommended) and later from a browser on your phone. The ping checks the connection to the LSOmni SQL Server database and NAV web service connection.

- **http://localhost/LSOmniService/json.svc/ping**

If the ping is successful, a “pong” is returned. You should try to connect the mobile app with the LSOmniService web service only after a successful ping. If the ping returns an error, please read the Troubleshooting section in Appendix E.

Open Windows Explorer “C:\LS Retail\LSOmni\LSOmniService\”. The \Sql folder has all the sql scripts used and the \logs folder has the logfile.txt that is extremely useful. You can change the values entered during the setup in the **AppSettings.config** file. The connection strings to NAV and SQL database are stored in the AppSettings.config file (see Appendix B). The error logging can be controlled with the NLog.config file (Appendix C). **Note** if you change these configuration files, the LSOmniService web service must be restarted. The web.config should not be changed unless SSL is used.
3.3.2 SQL Server database

A new LSOmni SQL Server database is created when running the LSOmni.Server.Setup.exe

- The LSOmni.Server.Setup.exe creates the SQL Server login LSOmniUser, password LSOmniUser and grants this user datareader and datawriter privileges in the LSOmni database. If you have problem logging in with this LSOmniUser then:
  - Login to the SQL Server Management Studio with Login: LSOmniUser, password: LSOmniUser and validate that the login works.
  - SQL Server can be configured with SQL Server Authentication disabled. The setup will display a warning but allow the setup to continue. Without the SQL Server and Windows Authentication mode enabled the LSOmniUser cannot be used. It can be enabled by opening up the SQL Management Studio, opening the Server properties and restarting.
The SQL Server connection string is stored in the C:\LSRetail\LSOmni\LSOmniService\AppSettings.config file.

```
<add key="LSOmniSQLConnectionString" value="Data Source=localhost;Initial Catalog=LSOmni; Persist Security Info=True;User ID=LSOmniUser;Password=LSOmniUser;MultipleActiveResultSets=True;"/>
```

In production, this connection string can be changed to use Windows Authentication or any other SQL Server login/password.

### 3.4 Data Director Replication

The only data in the LSOmni database after running the setup is in the AppSettings table. All other data must be replicated from LS Nav with the Data Director. The demo company has member contacts, offers, coupons, images and so on that make it easy to demo the LS Omni solutions. The demo company data includes the member contact user login: tom, password: tom.1 that can be used to log in without the need to create a new user.

To get up and running quickly, run the Data Director to replicate the LS Nav demo company to the LSOmni database. For more information about the replication, read the documents Mobile Loyalty and NAV Data Mapping.pdf and Mobile Loyalty LS Retail NAV 2013 - User Guide.pdf.
4 Test the setup with mobile apps

To quickly test the mobile apps on your phone against your local LS Omni Server installation, connect to the phone stores and search for **LS Retail Loyalty**. The default URL in these apps points to [http://lsretail.cloudapp.net/LSOmniService/json.svc](http://lsretail.cloudapp.net/LSOmniService/json.svc).

4.1 Android app

Download and install the LS Retail Loyalty app from Google Play Store. On the login screen tap 7 times on image and a new screen will appear, where the URL can be changed to point to the local LSOmniService web service.

4.2 Windows app

Download the LS Retail Loyalty app from the Windows Phone Store. On the login screen tap 7 times on image and a new screen will appear, where the URL can be changed to point to the local LSOmniService web service.

4.3 iOS app

Download the LS Retail Loyalty app from the Apple Store. On the login screen tap 7 times on textbox and a new screen will appear, where the URL can be changed to point to the local LSOmniService web service.
Appendix A

Full text search

In SQL Server Management Studio run this SQL statement:

```sql
if (SERVERPROPERTY('IsFullTextInstalled') = 0)
begin
    select 'Full-Text search is not installed.'
end
else if (SERVERPROPERTY('IsFullTextInstalled') = 1)
begin
    select 'Full-Text search is installed.'
end
```

Full Text Search is not required but strongly recommended. It is used in all the text searches so, without it, these database queries will be much slower on larger databases.

The Full Text Search feature must be selected during the SQL Server installation or on existing SQL Server by going into Programs and Features. Select Microsoft SQL Server then add the component to existing installation by selecting the Full Text Search feature.
6 Appendix B

AppSettings.config file

By default located under C:\LS Retail\LSOmni\LSOmniService\. Most values do not need to be changed. Most important are:

- **BOConnection.Nav.Url**
  - is the url to the NAV web service
  - http://NavWebServiceName:PORTNO/NAVSERVICEINSTANCE(ie.DynamicsNAV70)/WS/NAVCOMPANYNAME(ie.CRONUS)/Codeunit/RetailWebServices

- **BOConnection.Nav.UserName**
  - is the Windows account used to authenticate against the NAV web service, usually has role SUPER in NAV and is dbo or has equivalent rights in NAV database.

- **BOConnection.Nav.Password**
  - is the password for the BOConnection.Nav.UserName

- **LSOmniSQLConnectionString**
  - The connection string to the LSOmni SQL Server database

- **NavSqlConnectionstring**
  - The connection string to the LS Nav database and company

You can encrypt the Password with the LSOmniPasswordGenerator.exe and set the BOConnection.NAV.EncryptedPassword = true

**NOTE:** Do **not** put the domain name with the user name.

Wrong!!

```xml
<add key="BOConnection.Nav.UserName" value="LSRETAIL\MrWrong"/>
```

Correct:

```xml
<add key="BOConnection.Nav.Domain" value="LSRETAIL"/>
<add key="BOConnection.Nav.UserName" value="MrRight"/>
```

```xml
<add key="BOConnection.Nav.UserName" value="NAVUSERNAME"/>
<add key="BOConnection.Nav.Password" value="NAVUSERPASSWORD"/>
<add key="BOConnection.Nav.Domain" value=""/>
<add key="BOConnection.Nav.EncryptedPassword" value="false"/>
<add key="BOConnection.Nav.Encoding" value="utf-8"/>
<add key="BOConnection.Nav.Timeout" value="30"/>
<add key="LSOmniSQLConnectionString" value="Data Source=localhost;Initial Catalog=LSomni; Persist Security Info=True;User ID=LSOmniUser;Password=LSOmniUser;MultipleActive ResultSets=True;"/>
```

Wrong!!

```xml
<add key="BOConnection.Nav.UserName" value="NAVUSERNAME"/>
<add key="BOConnection.Nav.Password" value="NAVUSERPASSWORD"/>
<add key="BOConnection.Nav.Domain" value=""/>
<add key="BOConnection.Nav.EncryptedPassword" value="false"/>
<add key="BOConnection.Nav.Encoding" value="utf-8"/>
<add key="BOConnection.Nav.Timeout" value="30"/>
<add key="LSOmniSQLConnectionString" value="Data Source=localhost;Initial Catalog=LSomni; Persist Security Info=True;User ID=LSOmniUser;Password=LSOmniUser;MultipleActive ResultSets=True;"/>
```
<!-- Cache Cache.Image.DurationInMinutes=0 is no cache -->
<add key="Cache.Image.DurationInMinutes" value="1440"/>
<add key="Cache.Menu.DurationInMinutes" value="0"/>

<!-- License.Key from lsretail, validated in code TRIAL-3CONCURRENTUSERS -->
<add key="License.Key" value="TRIAL-3CONCURRENTUSERS"/>

<!-- NavSqlConnectionString, sql server connection string -->
<add key="NavSqlConnectionString" value="Data Source=NUPUR; Initial Catalog=NAV71; User ID=LSOmniUser; Password=LSOmniUser; NAVCompanyName=CRONUS LS 71 W1 Demo v16; Persist Security Info=True;MultipleActiveResultSets=True; "/>

<!-- security.basicauth, used when IIS is anonymous, simple check so unknown clients not all owed in -->
<add key="security.basicauth.validation" value="false"/>
<add key="security.basicauth.username" value="LSOmniServiceUser"/>
<add key="security.basicauth.pwd" value="XYZ.LSOmniServiceUser.321"/>

<!-- size (px) of jpg images saved to \Image folder -->
<add key="Image.Save.Width" value="618"/>
<add key="Image.Save.Height" value="618"/>

<!-- FolderName to save images. Ex: c:\LSOmni\Images. Empty means it uses \Images folder under \Service. -->
<add key="Image.Save.FolderName" value=""/>

<!-- Empty means it uses the ApplicationVirtualPath on local machine, http://localhost/LSO mniService/Images -->
<add key="Image.Save.AbsolutePath" value=""/>

<!-- for demo only -->
<add key="demo.print.enabled" value="true"/>

<!-- NAV stores everything in UTC, need to put the time offset here -->
<add key="Timezone.HoursOffset" value="0"/>

<!-- Local currency code. All amounts/prices are in this currency -->
<add key="Currency.Code" value="USD"/>
<add key="Currency.DecimalSeparator" value="\"/>
<add key="Currency.Postfix" value="\"/>
<add key="Currency.ThousandSeparator" value="\"/>
<add key="Currency.Symbol" value="\"/>
<add key="Currency.RoundOffSales" value="0.01"/>
<add key="Currency.RoundOffSales" value="0.01"/>
<add key="Currency.RoundOffSales" value="0.01"/>

<!-- BOConnection.AssemblyName value="LSOmni.DataAccess.BOConnection.Nav dll" -->
<add key="Infrastructure.Dal.AssemblyName" value="LSOmni.DataAccess.Dal.dll"/>

</appSettings>
Appendix C

NLog.config file

The logging configuration settings used are stored in the NLog.config file, which by default is located under C:\LS Retail\LSOmini\LSOminiService. The logger “**minlevel**” key determines how much logging is done. It can be **Trace, Debug, Info, and Error**. By default is set to **Debug** but production “**minlevel**” should be **Error**. By setting the minlevel to:

- **Error**: Only logs the error
- **Info**: Error + logs info about the WCF web requests
  - Very helpful to see the xml sent to the NAV web service
  - Logs how long the NAV web service call took to execute
  - Logs the incoming data in the WCF web requests
- **Debug**: Info + all the web service calls to NAV are logged (Request and Response xml)
  - Very helpful to see the xml sent to the NAV web service
  - Logs how long the NAV web service call took to execute
  - Logs the incoming data in the WCF web requests
- **Trace**: Debug + all the sql statements are logged


```xml
<?xml version="1.0" encoding="utf-8" ?>
  <!-- go to http://nlog-project.org/wiki/Configuration_file for more information -->
  <archiveFileName>${basedir}/logs/archives/log.#{}.txt
    archiveFileName="${basedir}/logs/archives/log.${shortdate}.#{}.txt"
  -->
  <targets>
    <target name="file" xsi:type="File"
      fileName="${basedir}/logs/logfile.txt"
      layout="${longdate} |tid:${threadid}| ${level} | [${machinename}-${windows-identity}] | ${callsite} | ${message} | ${exception:Format=tostring} ${newline}
      archiveFileName="${basedir}/logs/archives/log.#{}.txt"
      archiveEvery="Day"
      archiveNumbering="Rolling"
      maxArchiveFiles="?"
      encoding="iso-8859-2"/>
  </targets>
  <rules>
    <logger name="*" minlevel="Error" writeTo="file" />
  </rules>
</nlog>
```
8 Appendix D

8.1 Troubleshooting

Testing NAV web services

Download TestNavWebService tool the from the partner portal.

Unzip the TestNavWebService_tool.zip and run the TestNavWs.exe from your desktop machine.

Enter the NAV user and password (this is a Windows user that connects to NAV web service), and the URL. This test application sends and retrieves data from NAV in XML format and is very helpful when debugging NAV web services. You can also capture the XML in the \logs\logfile.txt and copy/paste it into this tool.

![Test NAV WS - LS Retail](image)

You can always create a new XML by looking at the LS Nav WS requests.
The XML for IM_TEST_CONNECTION will then be:

```xml
<?xml version="1.0" encoding="utf-8" standalone="no"?><Request>
  <Request_ID>IM_TEST_CONNECTION</Request_ID>
  <Request_Body>
    <Store_No>S0001</Store_No>
    <HHT_ID>P0001</HHT_ID>
    <Staff_ID>S0001</Staff_ID>
    <IP_Address>172.22.20.141</IP_Address>
    <MAC_Address>2297829212</MAC_Address>
    <Battery_Status>89</Battery_Status>
  </Request_Body>
</Request>
```
Chapter 9 - Appendix E

9 Appendix E

9.1 Troubleshooting the PING

If an error returns when you ping the web service then the first thing to do is look at the error log file. The error log file is always located in the C:\LS Retail\LSOmni\LSOmniService\logs folder. By default, it logs all the errors and the XML going between IIS and NAV. Look at the end of the file for the last error.

The most common error after installation is the “Unauthorized” error.


The “Unauthorized” error always means that the NAV windows account (domain/user/pwd) specified in the AppSettings.config file does not have permission to execute the NAV web service. Make sure the domain, username and password are connected in the AppSettings.config file.

Unauthorized - Ping works from mobile browser but not from mobile app.

By default the setup program enables anonymous authentication, the others authentications are disabled.

If you can PING the LSOmniService from a mobile browser on the mobile device but get Unauthorized in the mobile app/Mobile Inventory application then check the IIS Authentication. Make sure that the Basic Authentication is NOT set. If you plan on using basic authentication then a particular user must be created (stored in AppSettings.config).
Get the correct NAV URL

The NAV URL that goes into the AppSettings.config is often incorrect. Copy, paste the URL into a browser and validate that it works. A valid URL looks like this.

```
http://localhost:7047/DynamicsNAV71/WS/CRONUS LS 71 W1 Demo v16/Codeunit/RetailWebServices
```

```
http://NavWebServiceName:PORTNO (ie.7847)/NAVSERVICEINSTANCE(ie.DynamicsNAV71)/WS/NAVCOMPANYNAME(ie.CRONUS LS 71 W1 Demo v16)/Codeunit/RetailWebServices
```

Test the NAV web-service directly

If there are issues connecting with the NAV web-services then use the TestNavWs.exe (see Appendix D). It connects directly to NAV web service and bypasses the IIS/WCF layer.

I can ping locally but not from my phone or other computers.

This is most likely a firewall issue. Make sure port 80 is open on your IIS machine.