



# LinkOne WebView Technical Reference

Version 3.29

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Version 3.29

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# 1 Overview

In this document, you will find information on the technical operations of LinkOne WebView, targeted at those people tasked with administering, extending, or integrating the web site.

Readers should have a solid knowledge of the workings of Asp.net before continuing.

The Release Notes for each version, located in the **~/Documentation** directory, can an overview of the changes contained in the particular release. Further details on the documentation can be found in the Additional Information section at the end of this document.

Further technical material can be found in the API documentation, available by browsing to **~/Documentation/LinkOne WebView API.chm**.

If you need further guidance and support, contact your LinkOne reseller or **Enterprise Software Global Customer Care** (if you purchased LinkOne directly from Hitachi Energy) via the **Customer Portal** (<https://www.hitachienergy.com/>) or via **email** (<mailto:CustomerCare.ES@hitachienergy.com>).

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## 2 System Requirements

### 2.1.1.1.1 Requirements for LinkOne WebView Servers:

- One of the following operating systems:
  - Microsoft Windows 2012 Server
  - Microsoft Windows 2016 Server
  - Microsoft Windows 2019 Server
  - Microsoft Windows 2022 Server
  - The following are supported for non-production use only.
    - Microsoft Windows 11
    - Microsoft Windows 10
- Microsoft .NET Framework 4.6 (for WebView)
- ASP .NET 4
- Microsoft IIS 7, 8 or 10
- Microsoft SQL Express 2008 or later
- Microsoft SQL Server 2008, 2012, 2014, 2016, 2017,2019.
- 4GB of RAM
- 200 MB of available hard disk space (plus space for any LinkOne books and notes)

### 2.1.1.1.2 Minimum Requirements for LinkOne WebView Clients (Online):

The following versions of the supported browser have been actively tested during the development of LinkOne Web-View 3.28. Other versions of the supported browsers may operate but any issues may be rectified at Hitachi Energy's discretion.

Operating System	Supported Browser	Version
Microsoft Windows 11, 10	Internet Explorer	11, Edge
Microsoft Windows 11, 10	Google Chrome	Current version at time of release testing of LinkOne Web-View 3.28
Microsoft Windows 11, 10	Firefox	Current version at time of release testing of LinkOne Web-View 3.28
Apple OSx	Safari	5.0.5
Apple iOS	Safari	Current version at time of release testing of LinkOne Web-View 3.28
Google Android	Chrome	Current version at time of release testing of LinkOne Web-View 3.28

**NOTE:** 3D Model viewing is currently only supported on Internet Explorer 11 and Firefox.

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### 2.1.1.1.3 Minimum Requirements for LinkOne WebView Clients (Offline):

The LinkOne WebView Offline client is a Progressive Web Application (PWA) that utilise Service Workers technology provide by most recent web browsers.

At the time of release, the following were known to be the minimum browser versions:-

Chrome - 45

Edge - 17

Firefox - 69

Safari on iOS - 11.3

Chrome for Android - 96

Note: Service worker technology is not supported by Internet Explorer.

The following website can be used for general information on compatibility between Service Worker technology and browser versions : <https://caniuse.com/serviceworkers>

The storage requirements will depends directly on the content that is being downloaded. Where the browser supports it, the Offline Delete page includes a graph to indicate that stoage available to the browser.

### 2.1.1.1.4 Minimum Requirements for Advanced Search:

- Advanced Search Facility is supported by using a SOLR Server
- SOLR index Hard Disk space varies but as a guide, space equivalent to the size of the LinkOne libraries is required.

## 3 Installation

LinkOne WebView can be installed in a number of ways, and then configured for a number of environments. The simplest installation is for a single web server, and running the installer to completion with all default settings. The other ways and configurations are detailed in this section.

### 3.1 Installing Using Installer Application

LinkOne WebView is published as an installer application which contains a complete copy in several languages of the application web site, documentation, and sample books.

You would choose to install this way if you are running a single web server environment, or you are looking to get a single server working correctly before deploying to other web servers in a web farm.

For the steps to install and the server requirements, please read the LinkOne WebView Getting Started Guide.

#### 3.1.1 Setup Reference

A full list of install options is available from the command line. Use:

```
>WebView30.exe /?
```

If a log of the install is needed, then specify the log file on the command line. For example:

```
>WebView30.exe /! *v c:\install.log
```

The LinkOne WebView installer application uses properties that can be set on the command line prior to initiating the installation. Properties are passed to the installer using name-value pair sets on the command line. For example:

```
>WebView30.exe TARGETDIR="c:\installdir"
```

The published Properties are:

Property	Function
----------	----------

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TARGETDIR	The physical directory where the web site files will be copied to.
WEBSITENAME	The name of the web site under which the virtual directory will be created.
VIRTUALDIRECTORYNAME	The name to use for creating the virtual directory.
APPLICATIONPOOLNAME	The name to use for creating the application pool.
VERSIONIIS	The installed Microsoft IIS version. Set this property to a value of 6 or higher to bypass checking if Microsoft IIS is installed.
VERSIONSQLSERVER	Set this property to a value of 9 or higher to bypass checking if Microsoft SQL Server is installed.
VERSIONASPNET	The installed version of Microsoft Asp.Net. Set this property to a value of 3.5 or higher to bypass checking if Microsoft Asp.Net is installed.
CREATESTARTMENUSHORTCUTS	Set to "yes" to create start menu shortcuts.
PRINTERNAME	The name of the print device to install for server side printing (only required if no print device is installed on the computer).
REMOVEUSERDATA	This is an uninstall property which can be used during silent uninstall to specify if user data should be removed during the uninstall. By default this property is set to 1 which will remove user data. Setting it to an empty string "" will ensure that user data is not removed during the uninstall.

## 3.2 Installing Using Copy

The entire LinkOne WebView web site is contained within a single folder, and is designed to be copied to other folders and recreated as a new web site.

You would choose to install this way if you wanted to quickly start a physically separate new instance of an existing web site. This allows you to try out new configurations, new libraries, etc, in complete isolation to the original web site.

You would also choose to install this way if you were rolling out a copy of the same web site to other web servers in a web farm. You would configure the first server to use network shared configuration and data, then copy that server's web site folder to the other servers.

The steps required to install this way are as follow:

### 3.2.1 Internet Information Services (IIS) 6

#### 3.2.1.1 Configuring a new WebView web application

1. On the server you are copying from, open the services management console by clicking "**Start / Administrative Tools / Services**".



2. Right click on the **"SQL Server"** service and click **"Stop"**.
3. Right click on the **"World Wide Web Publishing Service"** service and click **"Stop"**.
4. Copy the WebView installation folder from its' current location (usually under **"C:\inetpub\wwwroot\yourdirectoryname"**) to the new location/server under **"C:\inetpub\wwwroot"**.
5. On the server you are **copying from**, open the services management console by clicking **"Start / Administrative Tools / Services"**.
6. Right click on the **"SQL Server"** service and click **"Start"**.
7. Right click on the **"World Wide Web Publishing Service"** service and click **"Start"**.
8. On the server you are **copying to**, open Internet Information Services (IIS) Manager by clicking **"Start / Administrative Tools / Internet Information Services (IIS) Manager"**.
9. Expand the tree until you locate **"Application Pools"**.
10. Right click on **"Application Pools"** and click **"New... / Application Pool..."**.
11. Enter a name for the application pool and press **"OK"**.
12. Expand the tree until you locate the new installation folder.
13. Right click on the new installation folder and select **"Properties"**.
14. Under the **"Directory"** tab, in the Application settings section, click **"Create"** to create a new application.
15. Set the **"Execute permissions"** to be **"Scripts and Executables"**.
16. Set the **"Application pool"** to the application pool created earlier.
17. Click **"Configuration"**.
18. Click **"Insert..."** in the Wildcard application maps section to create a new wildcard mapping.
19. Un-check the box **"Verify that file exists"**.
20. Click **"Browse..."**
21. Locate the file **"C:\windows\microsoft.net\framework\v2.0.50727\aspnet\_isapi.dll"** and click **"Open"**.
22. Click **"OK"**.
23. Click **"OK"**.
24. Under the **"Documents"** tab, click **"Add"**.
25. Type **"Default.aspx"** and press **"Enter"**.
26. Under the **"HTTP Headers"** tab, tick **"Enable content expiration"**.
27. Select **"Expire after"** and enter 7 **"Days"**.
28. Click **"Add..."**
29. Enter the **"Custom header name"** to be **"X-UA-Compatible"** and the **"Custom header value"** to be **"IE=EmulateIE8"**.
30. Click **"OK"**.
31. Under the **"ASP.NET"** tab, set the **"ASP.NET version"** to be **"2.0.50727"**.
32. Click **"OK"**.

### 3.2.1.2 Configuring compression on the new application

1. Open Internet Information Services (IIS) Manager by clicking **"Start / Administrative Tools / Internet Information Services (IIS) Manager"**.
2. Right click on the second element from the top in the left hand pane **"yourcomputername (local computer)"** and click **"Properties"**.
3. Ensure **"Enable Direct Metabase Edit"** is ticked.
4. Click **"OK"**.
5. Right click on the second element from the top in the left hand pane **"yourcomputername (local computer)"** and click **"All Tasks / Save Configuration to Disk"**.
6. Open the folder **"C:\Windows\System32\inetmgr"**.
7. Make a backup copy of **"Metabase.xml"**.
8. Open **"Metabase.xml"** in notepad.

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9. Search for "**<IISCompressionScheme**" you will find 3 occurrences. The following 2 steps apply to the sections immediately below the two with a "**Location**" setting of **"/LM/W3SVC/Filters/Compression/Deflate"** and **"/LM/W3SVC/Filters/Compression/gzip"** (usually the first two).
  - a. Set the value of "**HcDynamicCompressionLevel**" to **9**.
  - b. Add the following file extensions to the "**HcScriptFileExtensions**" setting, ensuring the spacing between each existing file extension matches the spacing between each new file extension:
    - **"aspx axd js css svc"**
10. Search for "**<IISWebDirectory**" where the end of the "**Location**" setting matches the name of the new application you created earlier in IIS.
11. Add the setting "**DoDynamicCompression="TRUE"**" below the "**HttpExpires**" setting.
12. Save and close the "**Metabase.xml**" file.
13. Open Internet Information Services (IIS) Manager by clicking **"Start / Administrative Tools / Internet Information Services (IIS) Manager"**.
14. Right click on the second element from the top in the left hand pane "**yourcomputername (local computer)**" and click **"All Tasks / Restart IIS..."**
15. Click **"OK"**.

### 3.2.2 Internet Information Services (IIS) 7, 8

#### 3.2.2.1 Configuring a new WebView web application

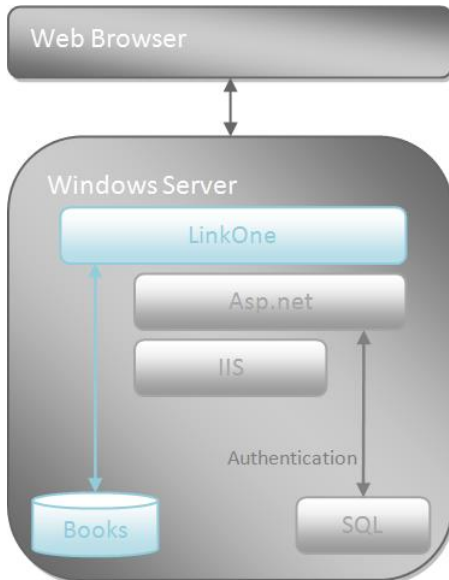
1. On the server you are copying from, open the services management console by clicking **"Start / Administrative Tools / Services"**.
2. Right click on the **"SQL Server"** service and click **"Stop"**.
3. Right click on the **"World Wide Web Publishing Service"** service and click **"Stop"**.
4. Copy the WebView installation folder from its' current location (usually under **"C:\inetpub\wwwroot\yourdirectoryname"**) to the new location/server under **"C:\inetpub\wwwroot"**.
5. On the server you are **copying from**, open the services management console by clicking **"Start / Administrative Tools / Services"**.
6. Right click on the **"SQL Server"** service and click **"Start"**.
7. Right click on the **"World Wide Web Publishing Service"** service and click **"Start"**.
8. On the server you are **copying to**, open Internet Information Services (IIS) Manager by clicking **"Start / Administrative Tools / Internet Information Services (IIS) Manager"**.
9. Expand the tree until you locate **"Application Pools"**.
10. Right click on **"Application Pools"** and click **"Add Application Pool..."**.
11. Enter a name for the application pool.
12. Select **".NET Framework v2.0.50727"**
13. Click **"OK"**.
14. Under **"Application Pools"**, right click on the newly created application pool and click **"Advanced Settings..."**
15. If the windows operating system is **64 bit** you must change **"Enable 32-Bit Applications"** to **"True"**.
16. Change the **"Identity"** to **"Network Service"**.
17. Click **"OK"**.
18. Expand the tree until you locate the new installation folder.
19. Right click on the new installation folder and click **"Convert to Application"**.
20. Click **"Select..."** and select the application pool created earlier then click **"OK"**.
21. Click **"OK"**.
22. You may need to add full permissions to the files under the **App\_Data** folder of the installation path to the **"Network Service"** user.

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### 3.3 Installing on a Single Server

Installation on a single web server can be done using either the installer application or copy methods. In the single server scenario, the web site configuration, book libraries, session state, and membership and reporting databases are generally kept within the web site folder. This is the default if the installer application is used.

Here is the structure of LinkOne WebView once it is installed:



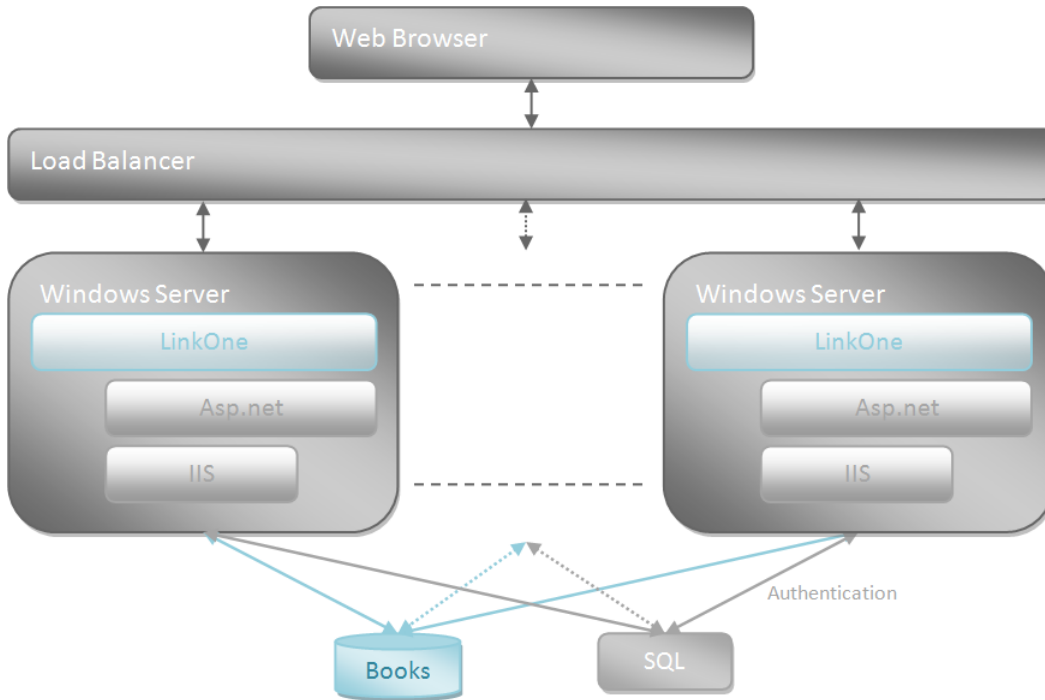
You would possibly reconfigure the web site to use book libraries that are shared with LinkOne WinView, in which case those book libraries would possibly be located on a network share. Browse to `~/Configuration/ConfigureLibraries.aspx` to choose a new library folder.

#### 3.3.1 Configuring Side-By-Side

Installation for side-by-side running of the same or different versions of LinkOne WebView is simply a matter of running the associated Setups and choosing different names for each web site.

### 3.4 Installing on a Web Farm

A simple server configuration for a LinkOne WebView web farm will look like this (excluding firewall, switches, and failover equipment).



In this configuration:

- each WebView server requires an exact duplicate of the web site folder on each web server
- the file server has the function of hosting:
  - the LinkOne WebView configuration file through a file share
  - the LinkOne book library through a file share
  - the LinkOne book notes through a file share
  - the web site membership and profile SQL databases
  - the web site session state server

Before duplicating the web site to each web server, configure all of the files, folders, and databases as detailed in the following sections.

#### 3.4.1 Configuring Files

LinkOne WebView relies on a few files and folders for configuration and data, and these are required to be shared amongst the web servers on the web farm. These files and folders must be placed on a network share for all of the web servers to read or write. These are detailed below.

##### 3.4.1.1.1 Configuration File

All configuration settings for LinkOne WebView are kept in a file named `~/Mincom.LinkOne.WebView.config`. By default this file is in the web site root folder, but must be placed on a file share for all web servers to read and write configuration.

This file location is set with an appsetting in the `~/web.config` file.

For example:

```
<appSettings>
```

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```
<add key="Mincom.LinkOne.WebView.WebServer.Services.ServiceBase.ApplicationDataFilePath"
value="\\Server\LinkOne\Mincom.LinkOne.WebView.config" />
</appSettings>
```

The value for this appsetting is the absolute file name of the application configuration file.

Note: The configuration for Asp.net still resides in the `~/web.config` files found in each web site on each web server.

#### 3.4.1.1.2 Data Log Folder

When an unexpected application error is caught by LinkOne WebView, a uniquely named error log file is created and written to the `~/Data/Log` folder. This folder must be moved to a file share for all web servers to read and write log files.

For example:

```
\\Server\LinkOne\Log
```

This folder is set by an administrator by browsing to `~/Configuration/ConfigureReporting.aspx`.

#### 3.4.1.1.3 Library Folders

The books that LinkOne WebView shows in the Browse Books web page come from the configured library folders which by default consists of one library folder which is `~/Data/Libraries/Mincom`. This library must be moved to a file share for all web servers to read.

For example:

```
\\Server\LinkOne\Libraries\Mincom
```

These folders are set by an administrator by browsing to `~/Configuration/ConfigureLibraries.aspx`.

#### 3.4.1.1.4 Notes Folders

By default the web site contains a `~/Data/PublicNotes` folder and a `~/Data/PrivateNotes` folder where public and private notes respectively, are stored. These folders must be moved to a file share for all web servers to read and write notes.

While public notes for all users go in the same folder, private notes must be specific to the logged on user, and not shared with other users. To facilitate this, the private notes folder path can contain a `{0}` place holder which will be replaced with the name of the logged on user to become the final user's private notes folder.

For example, a private notes folder path of:

```
\\Server\LinkOne\Users\{0}\LinkOne\PrivateNotes
```

Means for user John, the actual folder will resolve to:

```
\\Server\LinkOne\Users\John\LinkOne\PrivateNotes
```

These folders are set by an administrator by browsing to `~/Configuration/ConfigureNotes.aspx`.

Note: When deleting a user through the WebView configuration user interface, all the users' private notes will also be deleted. If the private notes need to be kept, then a backup of the private notes should be taken before deleting the user.

### 3.4.2 Configuring Databases

A single SQL database is used for the functions of membership, roles, and profiles. This database is found at `~/App_Data/ASPNETDB.MDF` and must be moved to the file share server and attached to a SQL Server instance on that server. The connection string to the database is found in `~/web.config` on each web server and must be changed to point to the shared database.

A second database is used for reporting and is found at `~/App_Data/LINKONEDB.MDF`. This database must also be moved to the file share server and attached to a SQL Server instance on that server. The connection string to the database is also found in `~/web.config` on each web server and must be changed to point to the shared database.

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### 3.4.3 Configuring State

The session state is configured to use the in-memory state server by default. There are two options to share the state amongst web servers: either using a common Asp.net state server, or a SQL server. Please see <http://msdn.microsoft.com/en-us/library/ms178586.aspx> for details on configuring each.

Running a shared Asp.net state server on the file share server will be sufficient in most cases. Once running, update the **~/web.config** sessionState entry on each web server to point to the new Asp.net state server.

The view state being received and generated for each browser request needs to be shareable amongst each web server as well. This requires a common machine key on each web server which is found in **~/web.config** machineKey entry. Please see <http://msdn.microsoft.com/en-us/library/ms998288.aspx> for more details. A machine key generator can be found at <http://www.aspnetresources.com/tools/keycreator.aspx>.

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## 4 Operation

The LinkOne WebView web site is built on Asp.net technology and leverages many of its features. These include:

- Theme folders to theme the web site pages
- Localization folders to localize the web site pages
- web.config files in each folder to secure that folder
- Site map for menu generation
- Security using the membership, role and profile database

This section details operations of these features.

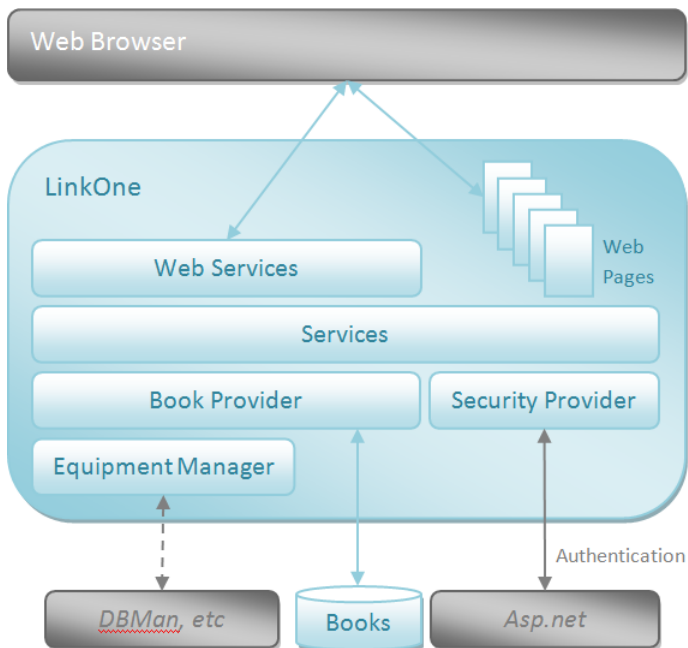
### 4.1 Web Site

#### 4.1.1 Service Layers

LinkOne WebView consists of several runtime areas that collectively generate content for a connected web browser. A high level diagram of these areas is shown below.

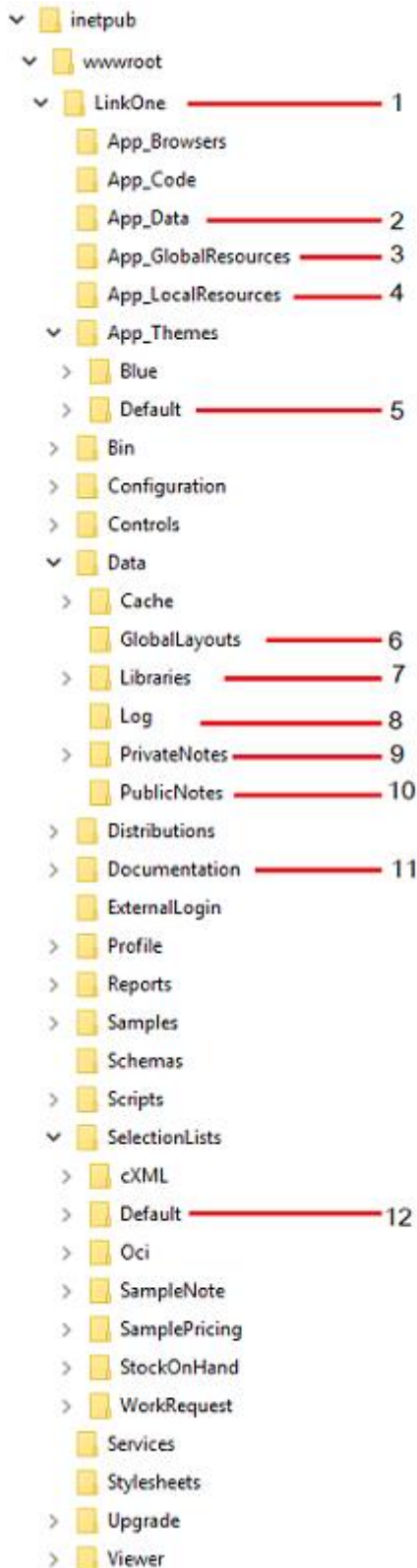
- Web Pages - these are the pages directly requested and shown by the web browser
- Web Services - these are the web services that are called by code running on the page in the web browser
- Services - these are the services that provide content for the web pages when they are requested, and for the web services when they are called
- Book Provider - this provider reads the LinkOne book content and supplies the LinkOne Document Object Model objects to the services
- Security Provider - this provider wraps the Asp.net security and is replaceable with a custom security provider
- Equipment Manager - this is an optional component allowing LinkOne WebView to interact with third party systems to resolve equipment identifiers to LinkOne parts

Further documentation on the services and providers can be found in the API documentation, available by browsing to [~/Documentation/LinkOne WebView API.chm](#).



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## 4.1.2 Folder Structure



1. Installation Folder
2. Databases for Roles, Membership, Profiles, Reporting
3. Global Translations
4. Local Translations
5. Web Site Themes
6. Global Layouts
7. Default Libraries and Supplied Notes
8. Log
9. Private Notes
10. Public Notes
11. Documentation
12. Default Selection Lists

The LinkOne WebView web site is installed the physical structure shown above, which is the structure of a standard Asp.net 2.0 web site.

The name of the install folder defaults to the same name as the chosen virtual directory.

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The location of the install folder defaults to a sub-folder of the physical folder of the chosen web site.

The LinkOne WebView application pool process identity is given read/write permissions to the entire web site folder.

### 4.1.3 Page Themes

LinkOne WebView uses Asp.net themes to style each web page. The default theme is identified in the `~/web.config` file and is overridden in the session by the theme chosen at login time. New themes can be added as a sub-folder to the web site themes folder, `~/App_Themes`, and they will automatically appear in the list of available themes on the login web page.

### 4.1.4 Page Format

LinkOne WebView uses master pages to provide a common look and feel across all web pages. They also provide basic page layout and error notification controls.

The web site contains two master pages, broadly separating book viewing functions, and site management functions.

Master Page	Derived Pages
<code>~/web.master</code>	<code>~/*</code> <code>~/Configuration/*</code> <code>~/Reports/*</code>
<code>~/Viewer/web.master</code>	<code>~/Viewer/*</code> (popup pages only)

### 4.1.5 Global Layouts

Global Layouts allow provide the ability to define LinkOne layouts/format file(s) that can be used to modify the appearance of LinkOne books when they are viewed or printed. For example, if the company logo changes, a global layout file could be used to define the new layout without the need to re-publish all of the books.

The features must have been allowed when the original book was published

The default folder for the location of Gloabl Layouts is `~/Data/GlobalLayouts`. This can be deinfed by the Administrator via the **Configuration > Layouts** page. This page also allow the administrator to define the behaviour for the layouts.

The default behaviour is the use the format specified in the book. This can be latered by the end user while viewing a book via the **View > Preferences** page.

For more information regarding Layouts/formats, please refer to the LinkOne Publishing User Guide.

## 4.2 Security

### 4.2.1 Authentication

The web site by default is secured using Forms Authentication, and will redirect the user to `~/Login.aspx` when a new request or a session-timed-out request is received.

Alternative methods of authentication are detailed by Microsoft at <http://msdn.microsoft.com/en-us/library/532aee0e.aspx>.

### 4.2.2 Authorization

The main web site folder is unsecured, and allows access to the documentation folder and login pages. Other sub-folders in the web site are secured and require the user to be authorized.

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The following is a table of commonly accessed sub-folders and the authorization required for access.

Web Site Folder	Authorization Required
~/	None
~/Configuration	Administrators
~/Documentation	None
~/Profile	Administrators
~/Reports	Administrators
~/Viewer	Authenticated Users

### 4.2.3 Profiles

The web site by default uses the Asp.net SQL Profile Provider and stores profile details in the web site database at **~/App\_Data/ASPNETDB.MDF**.

A profile is maintained for each user and role. A user profile is stored against the user name, and a role profile is stored against the role name prefixed by "Role\$".

A profile consists of configuration and data specific to that user or role. For example policies, licenses, allowed books, allowed notes, and saved selection lists.

A user profile inherits some role profile details. For example policies, licenses, allowed books, and allowed notes.

### 4.2.4 Roles

The web site by default uses the Asp.net SQL Role Provider and stores role details in the web site database at **~/App\_Data/ASPNETDB.MDF**.

The default installation includes two registered roles:

Role Name
Administrators
Users

Roles can be managed by browsing to **~/Configuration/ConfigureRoles.aspx**.

### 4.2.5 Users

The web site by default uses the Asp.net SQL Membership Provider and stores user details in the web site database at **~/App\_Data/ASPNETDB.mdf**.

The default installation includes two registered users:

User Name	Password	Roles
Admin	admin	Administrators
User	user	Users

Users can be managed by browsing to **~/Configuration/ConfigureUsers.aspx**.

As outlined in the LinkOne WebView Getting Started Guide, it is recommended that the default passwords are changed and backup admin users is created.

The Asp.Net SQL Membership provider, configured in the User password strength is controlled by a setting in `~/web.config`, has been configured with a general set of parameters. It is recommended that these parameters are reviewed and modified to meet the organisational security requirements. Further details on the individual properties are located at <https://docs.microsoft.com/en-us/dotnet/api/system.web.security.sqlmembershipprovider>

#### 4.2.6 Policies

Policies are flags that are used to control behavior in the web site and are set on a role or user. For example, there are individual policies allowing the creation of supplied, public, and private notes. If a policy is set on a role, then all users in that role also inherit that policy. A policy can't be unset for a user if the policy is set on a role the user is in.

Policy flags are stored on the profile of the associated role or user, and are indicated by having a name prefixed with Policy.

The default installation includes the following policies:

Policy	Affects	Assigned To
Allow Category Writing	The ability to create or modify note categories.	Administrators
Allow Public Note Writing	The ability to create or modify notes for public viewing.	Administrators
Allow Supplied Note Writing	The ability to create or modify notes supplied with book content.	Administrators
Allow Private Note Writing	The ability to create or modify notes for private viewing.	Users
Allow Multilingual Note Writing	The ability to create or modify notes in languages other than the login language.	Administrators
Allow Selection List Sharing	The ability to see Selection Lists from other users that are in at least one of the roles the Assigned User is in.	Administrators
Disable changing Password	When set, stops the assigned user or users in the assigned role from changing the password on the 'My Profile' dialog. (Default: not set)	Administrators
Allow use offline mode	The ability to browse the application in offline mode with limited capability	Administrators

### 4.3 Site Licensing

LinkOne WebView requires all users to possess a token to access the web site. If a user accesses the web site without a token then they will be granted one automatically. If all tokens licensed to the web site are taken, then the user will be denied access and redirected to the unlicensed web page which is `~/Unlicensed.aspx`.

Once a token has been granted to a user, it remains unavailable to other users for a period of 15 minutes from last use. So as long as the user stays active on the web site, they will continue to hold that token. If the user has had no activity for more than 15 minutes, then their token is released for use by another user.

It is the responsibility of the web site owner to authenticate each user prior to them gaining access to the web site and consuming a token. LinkOne WebView includes a sample login page to accomplish this authentication, which uses Asp.net Windows Forms Authentication.

By default, each LinkOne WebView installation comes with one free login token, allowing one login. When a valid LinkOne WebView site license is added to the configuration (~/**Configuration/ConfigureSiteLicenses.aspx**) then the number of tokens identified by the license will be available. The total number of tokens available is the sum of all tokens from valid site licenses.

A site license is valid if it has not expired, and it is serving the web site domain that it is licensed for.

## 4.4 Content Caching

LinkOne WebView takes advantage of the fact that most book content is static, and thus keeps a cached copy of pictures, embedded documents, and additional book graphics, outside the library in the ~/**Data/Cache** folder. This cache folder can be shared amongst other web servers in a web farm, and can also be made to point to a different folder, by reconfiguring with the ~/**Configuration/ConfigureLibraries.aspx** page.

Pictures are cached on demand, and in a lazy manner. The initial opening of a page will cache a picture large enough to be shown in the browser. As the user zooms in on the picture, the picture is magnified into larger resolution layers, and also cached. To hasten the serving to the browser of these magnified and thus larger pictures, each picture is diced into tiles and served to the browser based on what picture tile the user can see.

Embedded documents are also cached on demand. This makes for faster serving of large PDF documents for example.

Additional book graphics are also cached on demand for faster serving, which helps where these graphics are used on every page in things like parts list headers.

The cache will continue to grow as the library is walked by the users. Any out of date cached entity will be replaced if it is requested and the associated published book entity has been republished. The cache can be deleted at any time, and the server will recommence caching of any requested entity.

With the release of WebView 3.4, a number of performance improvements have been added which affect caching. These improvements are all configurable in `Mincom.LinkOne.WebView.config` in the form:

```
<add key="<valueName>" value="<value>" enabled="true" />
```

### 4.4.1.1.1 New configuration value

#### 4.4.1.1.1.1 Sliding window for caching books

```
Mincom.LinkOne.WebView.WebServer.Services.BookService.BookCacheWindow=<seconds>
```

#### 4.4.1.1.2 New features

##### 4.4.1.1.2.1 Start priming picture cache when a page is requested

```
Mincom.LinkOne.WebView.WebServer.Services.BookService.EnableBackgroundPictureCache=true/false
```

##### 4.4.1.1.2.2 Start caching loading books while browsing the browser

```
Mincom.LinkOne.WebView.WebServer.Services.BookService.EnableBackgroundBookCache=true/false
```

and

```
Mincom.LinkOne.WebView.WebServer.Services.BookService.PrimeBookCacheWindow=<seconds>
```

## 4.5 Selection Lists

The LinkOne WebView selection list holds a list of parts, selected from LinkOne books. This list of parts can then be "checked out" to another application such as a parts requisitioning system.

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A custom selection list may be developed in order to comply with corporate branding requirements and to integrate LinkOne WebView with other software applications, by developing a customized check-out procedure.

The types of customizations that are possible with the selection list include:

- The contents of the selection list, column headings.
- Mapping of parts list fields down to selection list columns.
- Multilingual support for column headings, toolbar tooltips, and parts list field mappings.
- Retrieval of information (such as part prices) from external systems as a part is added to the selection list.
- Creation of a check out procedure to pass the selection list contents on to another software application.

LinkOne WebView comes with a SAP Open Catalog Interface (OCI) compliant selection list, which can be seamlessly integrated with applications that support OCI punch-out.

The LinkOne WebView selection list is NOT compatible with a LinkOne WinView selection list, although it supports similar concepts such as:

- Configurable columns, headings, etc.
- Configurable parts list mappings.
- Language dependent behavior.

A LinkOne WebView selection list consists of a sub-folder in **~/SelectionLists** which contains:

- An XML definition file (selectionlist.xml) that defines the list field mappings
- Asp.net web pages forming the user interface

#### 4.5.1 Supplied Selection Lists

LinkOne WebView is installed with the following selection lists:

Selection List Name	Description
Default	This selection list is identical to the default selection list provided with LinkOne WinView. This selection list is located in <b>~/SelectionLists/Default</b> .
Sample Pricing	This selection list demonstrates how part prices can be retrieved from an external system via an ASP.NET script, as parts are added to the list. This selection list is located in <b>~/SelectionLists/SamplePricing</b> .
StockOnHand	This selection list demonstrates how available stock levels or stock on hand for individual part numbers could be retrieved from an external system and added to the selection list. This selection list is located in <b>~/SelectionLists/StockOnHand</b>
WorkRequest	This selection list demonstrates part number information in the selection list and equipment information could be used to raise a work request or work order in an external system and added to the selection list. This selection list is located in <b>~/SelectionLists/WorkRequest</b>

OCI	<p>The OCI selection list is a SAP OCI 3.0 compliant selection list. OCI defines an interface between SAP Business-to-Business Procurement and third-party catalog systems. OCI specifies a naming standard for fields in a compliant selection list. This can be seen in the OCI selection list definition file. The specification for OCI on the SAP web site at <a href="http://www.sap.com">http://www.sap.com</a>.</p> <p>This selection list is located in <b>~/SelectionLists/Oci</b>.</p>
cXML	<p>A cXML selection list can be used to integrate with other systems supporting cXML integration</p> <p>This selection list is located in <b>~/SelectionLists/cXML</b>.</p>

## 4.5.2 OCI Selection List

The OCI selection list is a SAP OCI (3.0) compliant selection list. OCI defines an interface between SAP Business-to-Business Procurement and third-party catalog systems. The full OCI specification can be found on the SAP web site at [www.sap.com](http://www.sap.com). The LinkOne implementation of OCI for a selection list is located **~/SelectionLists/OCI**.

OCI specifies a naming standard for fields in a compliant selection list which can be seen in the OCI selection list definition file at **~/SelectionLists/OCI/selectionlist.xml**.

### 4.5.2.1.1 OCI Login

Login to an OCI enabled LinkOne WebView session is through the **~/OCILogin.aspx** address.

The login address and the parameters below form the setup in the Standard Call Structure for an SAP LinkOne Catalog Web Service.

The supported URL login parameters defined by OCI are:

Parameter name	Details	Default Value
HOOK_URL	The location that LinkOne WebView will post selection list data back to. This parameter is a mandatory requirement.	
~target	The target of the form data within the HOOK_URL. Additionally this value will be included in the form data as a field.	_top
~okcode	The code to include in the form data to indicate success.	ADDI
~caller	The source of the request. This value will be included in the form data.	CTLG

Additional URL login parameters to support the LinkOne session that is created are:

Parameter Name	Details	Default Value
uid	The user name to login with.	
pwd	The user password to login with.	
theme	The web site theme to use for web page rendering.	default
lang	The two letter preferred language of the viewed book content.	en

selectionlist	The configuration name of the selection list to use.	oci
book	A specific book to open LinkOne at. If not specified, then LinkOne will open at the browse book page.	

#### 4.5.2.1.2 Test OCI Login

LinkOne WebView provides a test harness page at `~/OCITest.aspx`. This page allows the user to test OCI by supplying various parameters. Using the test page with the default values, you can initiate a WebView session, select parts, and then post the parts back to the test page where the OCI output may be viewed.

#### 4.5.3 cXML Selection List

A cXML based selection list has been included to allow the integration with a wider range of third party system. The cXML based selection list has been based on the OCI Selection List. The LinkOne implementation of cXML for a selection list is located in `~/SelectionLists/cXML`.

cXML specifies a naming standard for fields in a compliant selection list which can be seen in the cXML selection list definition file at `~/SelectionLists/cxml/selectionlist.xml`.

##### 4.5.3.1.1 cXML Login

Login to a cXML enabled LinkOne WebView session is through the `~/cXMLLogin.aspx` address.

The login address and the parameters below form the setup in the Standard Call Structure for an SAP LinkOne Catalog Web Service.

The supported URL login parameters defined by cXML are:

Parameter name	Details	Default Value
HOOK_URL	The location that LinkOne WebView will post selection list data back to. This parameter is a mandatory requirement.	
~target	The target of the form data within the HOOK_URL. Additionally this value will be included in the form data as a field.	_top
~okcode	The code to include in the form data to indicate success.	ADDI
~caller	The source of the request. This value will be included in the form data.	CTLG

Additional URL login parameters to support the LinkOne session that is created are:

Parameter Name	Details	Default Value
uid	The user name to login with.	
pwd	The user password to login with.	
theme	The web site theme to use for web page rendering.	default
lang	The two letter preferred language of the viewed book content.	en
selectionlist	The configuration name of the selection list to use.	cxml

book	A specific book to open LinkOne at. If not specified, then LinkOne will open at the browse book page.	
------	---	--

#### 4.5.3.1.2 Test cXML Login

LinkOne WebView provides a test harness page at `~/cXMLTest.aspx`. This page allows the user to test cXML by supplying various parameters. Using the test page with the default values, you can initiate a WebView session, select parts, and then post the parts back to the test page where the cXML output may be viewed.

#### 4.5.4 Selection List Changes Since WebView 2.x

When customizing the selection list in LinkOne WebView 3.0, implementers are not able to simply copy a selection list folder from LinkOne WebView 2.x to LinkOne WebView 3.0. This is because the underlying architecture of Selection List functionality has changed in LinkOne WebView 3.0. The major differences between the two are:

- LinkOne WebView 3.0 no longer allows selection lists to inherit common data from another selection list. A selection list must be fully self contained in the selection list folder.
- LinkOne WebView 3.0 default selection lists now make use of Asp.net data grids to store / display and allow the editing of information.

#### 4.5.5 Selection List Reference

Every selection list requires an XML definition file named `selectionlist.xml` that specifies:

- A mapping of fields from the parts list to columns in the selection list.
- The format of columns in the selection list.
- Translations for column headings and different parts list mappings for each supported language.

The definition file contains a selection list definition (`<selectionlistdefinition>`) for each supported language. Each selection list definition contains a list of the columns in the selection list (`<fields>`) and a list of field mappings that describe which parts list entries are moved to each column in the selection list (`<fieldmappings>`).

See `~/SelectionLists/Default/SelectionList.xml` for an example of the selection list format.

Tag	Tag Description	Attribute	Attribute Description
<code>&lt;selectionlistdefinition&gt;</code>	Encloses the entire selection list definition for a specific language.	<code>lang=</code>	Specifies the two-character ISO 639 language code for which this selection list definition applies. Use <code>lang=""</code> to specify that this selection list definition is the default definition to be used when a matching language code is not found.
<code>&lt;fields&gt;</code>	Encloses the list of <code>&lt;field&gt;</code> tags. These describe the number and type of columns in the selection list.		



<field>	Defines a column in the selection list.	title=	The heading for this column
		name=	The unique name for this column. This name is used to refer to the column in the field mappings.
		editable=	true   false If true, the column is an editable text entry field. The value of the column is saved when the user clicks on <b>Save</b> . The default is false.
		hidden=	true   false Specifies that a column not displayed in the browser. The default is false.
		requested_qty=	This identifies the field as holding the requested quantity - that is the quantity to be ordered. When you mark a field as requested_qty, it is not assigned any values from the selected parts list entry. Instead, it is assigned a value of "1" or the quantity fitted if the book specifies SELECT_QTY_FITTED=TRUE.

		<p>newline=</p>	<p>terminates   kept   removed   blanked</p> <p>Determines how the selection list treats newline characters when a field is mapped from the selection list.</p> <p>terminates</p> <p>Specifies that this field will only take data from the corresponding parts list field up to the first line break. Any text after the first line break in the parts list will not be included in the Selection List field.</p> <p>kept</p> <p>Specifies that any line breaks in the corresponding parts list field will be retained when the data is added to the Selection List.</p> <p>removed</p> <p>Specifies that any line breaks in the corresponding parts list field will be removed when the data is added to the Selection List.</p> <p>blanked</p> <p>Specifies that any line breaks in the corresponding parts list field will be replaced with blanks when the data is added to the Selection List.</p> <p>The default is kept.</p>
		<p>ignore_bracketed_text=</p>	<p>true   false</p> <p>When true, specifies that any text within parenthesis in the corresponding parts list field will be removed when the data is added to the Selection List.</p> <p>The default is false.</p>

		criteria=	true   false Whether or not the part to be added requires this field to be present. If criteria is true for the column, and the part being added does not have a value for the field then the part can't be added to the selection list.
		export_tag=	The name used to identify the column in exported data. If no export tag is specified and the selection list is export the name value will be used.
<fieldmappings>	Encloses the list of <map> tags.		
<map>	Defines a mapping from fields in the parts list to columns in the selection list.	pub=	A publisher code for the field mapping. If not supplied, the map becomes the default map to which all unmatched mappings apply.
		book=	A book code, allowing the mapping to be specified down to the book level. Applies only in conjunction with a publisher code.
<mapfield>	Defines the mapping for a specific selection list column.	name=	The name of the column to which the mapping applies.
		type=	bookfield   listfield   entryfield   literal   picturefield   value   empty The type of the field being mapped. A type of "empty" means that the column is unmapped.

		field=	<p>The name of the field being mapped.</p> <p>Pre-defined book fields are:</p> <ul style="list-style-type: none"> <li>• publisher</li> <li>• book</li> <li>• title</li> </ul> <p>Pre-defined list fields are:</p> <ul style="list-style-type: none"> <li>• title</li> <li>• group</li> <li>• page reference</li> <li>• page number</li> </ul> <p>Pre-defined entry fields are:</p> <ul style="list-style-type: none"> <li>• item id</li> <li>• part number</li> <li>• description</li> <li>• fitted</li> <li>• tagnumber</li> <li>• units</li> <li>• weight</li> <li>• alternative</li> <li>• link publisher</li> <li>• link book</li> <li>• link reference</li> <li>• link item</li> </ul> <p>Pre-defined picture fields are:</p> <ul style="list-style-type: none"> <li>• picture number</li> <li>• title</li> </ul> <p>Pre-defined value fields are:</p> <ul style="list-style-type: none"> <li>• book</li> <li>• book_title</li> <li>• booklocn</li> <li>• date</li> <li>• filename</li> <li>• list_title</li> <li>• option_filters</li> <li>• page</li> <li>• partdescr</li> <li>• partno</li> <li>• picture_title</li> <li>• pub</li> <li>• ref</li> </ul>
--	--	--------	--

			<ul style="list-style-type: none"> <li>• time</li> <li>• visiblepage</li> <li>• visibleref</li> </ul> <p>When type="literal", the field contains the value that would be replaced. For example type="literal" field="EACH" will place the value of EACH into the field.</p>
--	--	--	---

## 4.6 Book Libraries

Book libraries for LinkOne WebView are the same libraries that are used by LinkOne WinView and so can be shared by both applications at the same time.

For LinkOne WebView, all libraries are indexed Unicode libraries for high speed access, and use the publisher index file (man.lst) in each library folder and the book index file (book.lst) in each publisher folder. When a library is added using the web site library configuration page ([~/Configuration/ConfigureLibraries.aspx](#)), the library will be checked for an index, and a warning issued if no index is found. If you add books or publishers manually to an existing library, then you will need to re-index the library using the library configuration page.

### 4.6.1 Content Encoding

When a book is read from the book library, it requires decoding. The code page for decoding the text within the book is looked for in four places in the following order:

1. The publisher definition file (man.def) in the publisher folder. This requires a CODEPAGE,nnnn entry in that file. A typical entry for decoding Russian might be CODEPAGE,1251.
2. The book definition file (book.def) in the book folder. This requires a CODEPAGE,nnnn entry in that file. A typical entry for decoding Russian might be CODEPAGE,1251.
3. The book file (book.bbi) in the book folder. This is a binary file that can't be edited and was created with LinkOne Publisher when the book was published. If the book was published with LinkOne Publisher version 5.0 SP5 or later, then this file includes the code page used by the publisher and which is used to decode the book during loading.
4. The web site default global code page. This is configured with the [~/Configuration/ConfigureLibraries.aspx](#) page.

**NOTE:** If manual changes like CODEPAGE,nnnn entries are made to the publisher definition file (man.def) and or the book definition file (book.def), then you will need to re-index the library using the library configuration page.

## 4.7 Error Logging

Errors are caught by the error event handler in [~/Global.asax](#) and redirected to LinkOne WebView Error Service. This service generates a unique error file containing the error details, and saves the file in the [~/Data/Log](#) folder (this folder can be chosen using the Reporting configuration page at [~/Configuration/ConfigureReporting.aspx](#)). The user is then redirected to the [~/Error.aspx](#) error handling.

## 4.8 Event Logging

Event Logging has been implemented to provide audit trail of significant sensitive administrative related events occurring within Linkone WebView. This logging has been implemented utilising the log4net logging library and the

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configuration can be found in the web.config file under <log4net> directive. It can be turned off/disabled by setting the setting <level value="OFF" />

The default location of the log files is the ~/Data/Log directory with the log files being changed/rolled over every 2MB in size.

The following log events are recorded.

User Events;

- Login
- Logout
- AddUser
- DeleteUser
- UnlockUser
- AddUserRole
- SetUserAllowedAllBooks
- AddUserAllowedBooks
- DeleteUserAllowedBook
- SetUserAllowedAllNotes
- AddUserAllowedNote
- DeleteUserAllowedNote
- SetUserPolicy
- SetUserPassword (Administrator changing users password)
- ChangeUserPassword (User changing their password).

Role Events;

- SetRoleAllowedAllBooks
- AddRoleAllowedBooks
- DeleteRoleAllowedBook
- SetRoleAllowedAllNotes
- AddRoleAllowedNotes
- DeleteRoleAllowedNotes
- SetRolePolicy

## 4.9 Backing Up

### 4.9.1.1 Backup

Generally, you should perform periodic backup of:

- The LinkOne WebView configuration file (**~/Mincom.LinkOne.WebView.config**)
- The LinkOne WebView membership, role, and profile database (**~/App\_Data/ASPNETDB.mdf**)
- Any web site files that have been customized or added

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Backup of the database can be performed on the web server with suitable changes to the following:

```
osql -E -Q "BACKUP DATABASE aspnetdb TO DISK='C:\aspnetdb.bak'"
```

To backup a specific server, you can add:

```
-S <databaseservername>
```

#### 4.9.1.2 Restoration

Restoration of the database can be performed on the web server with suitable changes to the following:

```
osql -E -Q "RESTORE DATABASE aspnetdb FROM DISK='C:\aspnetdb.bak'"
```

To restore for a specific server, you can add:

```
-S <databaseservername>
```

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## 5 Tools

### 5.1 Clear Cache Tool

Clearing selected parts of the cache can be done manually from a command prompt on the web server, by running the `~/bin/ClearCacheTool.exe` tool. Using this tool allows the cached contents of a book, to be deleted without affecting the rest of the cache contents. By default the tool will not delete anything unless the `-delete` argument is provided, it will only report the root directory that will be deleted. The command line arguments are described below.

Argument	Description
<b>-library=path</b>	The path of the library containing the book to be removed from cache. The path must be in the same form as specified in the Configuration\Libraries setting in WebView. - Absolute path (eg: C:\library, or \\server\share) The argument is mandatory and there is no default value.
<b>-publisher=PublisherCode</b>	The publisher code of the publisher whose book is to be removed from the cache. The argument is mandatory and there is no default value.
<b>-book=BookCode</b>	The book code of the book whose content is to be removed from the cache. The argument is mandatory and there is no default value.
<b>-report=file</b>	The report file to be used. The file can be in the form: - Absolute path (eg: C:\reindex.log, or \\server\share\reindex.log) - Relative path to the web site (eg: Data\Log\reindex.log, or ~/Data/Log/reindex.log) The argument is optional and there is no default value.
<b>-delete</b>	Delete the specified part of the cache.

### 5.2 Library Re-Indexer

LinkOne WebView uses indexed LinkOne book libraries for faster access to the libraries. Whenever books are added to or removed from a library, the library must be re-indexed, otherwise any added book won't be seen, and any removed book will continue to be seen.

Re-indexing can be done manually through the web site, by logging in with an Administrator role, and navigating to `~/Configuration/ConfigureLibraries.aspx`, and clicking the **Re-Index** tool next to the library that needs re-indexing.

Re-indexing can also be done manually from a command prompt on the web server, by running the `~/bin/Reindex-Tool.exe` tool. Using this tool allows re-indexing from scripts or scheduled tasks. The command line arguments are described below.

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Argument	Description
<b>-library=path</b>	<p>The path to the library that is to be re-indexed. The path can be in the form:</p> <ul style="list-style-type: none"> <li>- Absolute path (eg: C:\library, or \\server\share)</li> <li>- Relative path to the web site (eg: Data\Libraries\Mincom, or ~/Data\Libraries/Mincom)</li> </ul> <p>The argument is mandatory and there is no default value.</p>
<b>-reporting=None Errors Summary Detailed</b>	<p>The reporting level used to write to the console and to any specified report file.</p> <p>The argument is optional and the default value is None.</p>
<b>-report=file</b>	<p>The report file used when the reporting level is not None. The file can be in the form:</p> <ul style="list-style-type: none"> <li>- Absolute path (eg: C:\reindex.log, or \\server\share\reindex.log)</li> <li>- Relative path to the web site (eg: Data\Log\reindex.log, or ~/Data/Log/reindex.log)</li> </ul> <p>The argument is optional and there is no default value.</p>
<b>-codepage=#</b>	<p>The code page for decoding any old books.</p> <p>The argument is optional and the default value is the current system code page from <b>Code Page for Non-Unicode Programs</b> in <b>Control Panel &gt; Regional Settings</b>.</p>

### 5.3 LinkOne Book Indexing Service

The Advanced Search Facility uses a SOLR database to hold indexes to the documents in the LinkOne libraries. Before the Advanced Search Facility can be used, the LinkOne libraries must be indexed. This is done by the System Administrator starting the **~/bin/LinkOneBookIndexingService** Windows Service on the web server.

Note that when any book in the libraries is modified, or a book is deleted, or a new book is added, the **LinkOne-BookIndexingService** will automatically reindex the books as expected.

More detailed information, e.g how to enable logging, can be found in the **How to Configure Advanced Search** section

### 5.4 Migrating User Notes From WebView 2.2

#### 5.4.1.1 Introduction

**NOTE :** As of version 3.25, the online options to assist with WebView 2.2 migration have been removed. Please contact LinkOne Support to obtain information of how to manually call this URL

LinkOne provides the ability for users to create notes, both private and public, relating to particular entities, such as parts or a book. In LinkOne WebView 2.2, these notes are stored in the database, whereas in WebView 3, they are stored in a file based structure.

A set of tools has been provided with WebView 3 to assist with the transfer of public and private notes from WebView 2.2 to WebView 3.

**NOTE :** It is highly recommended that the tools are executed and tested in a non-production system prior to running in a production system.

The tools are run as console applications from a Windows command prompt. The Export tool produces an XML file containing the user notes from the WebView 2.2 system and the Import tool reads an XML file produced by the Export tool and loads the user notes into the WebView 3 User Notes area.

#### 5.4.1.2 Transferring User Notes

The tools are installed with the WebView 3 installation into the Bin directory under the web site. There is an export tool to extract the user notes from the WebView 2.2 database and an import tool to create the notes retrieved by the export tool into the WebView 3 location.

- Export Tool : **NotesMigrationTool.Export.exe**
- Import Tool : **NotesMigrationTool.Import.exe**

##### 5.4.1.2.1 Installation of Export Tool into WebView 2.2 Site

For the WebView 2.2 Export tool to run correctly, it needs to be located in the same directory as the WebView 2.2 web server assemblies. This path would be similar to

C:\Program Files\Mincom\Linkone\WebView\WebSite

**NOTE :** For this release, the tool is compiled for use with WebView V2.2 SP12.

Copy the export tool from the WebView 3 install Bin directory to the correct location for WebView 2.2.

##### 5.4.1.2.2 Export the User Notes from WebView 2.2

The Export tool is a console application and is run from a command prompt. Open up a command prompt and navigate to the folder where the Export tool has been copied. The definition for the Export tool follows.

###### 5.4.1.2.2.1 NotesMigrationTool.Export

<b>Syntax :</b>	NotesMigrationTool.Export.exe <output notes file name>
<b>Parameters :</b>	<b>output notes file name</b> - path name to the XML file where the user notes are to be written.
<b>Remarks :</b>	The <output notes file name> is the path name of an XML file to contain the user notes from the WebView 2.2 implementation. If the file does not exist, it will be created. If it does exist, it will be overwritten by the execution of this command.

The following is an example of the export command:

```
NotesMigrationTool.Export.exe c:\data\linkone\notes.xml
```

###### 5.4.1.2.3 Export Remarks

The export program is a passive program and only reads data from the LinkOne books database. Therefore it can be run as many times as required without affecting the WebView 2 data.

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The database connection details are obtained by the Export program by reading the configuration information of the web server. This directs the program to the Application config file located in the user writeable area for the AllUsers entity.

The user defined in the configuration files for the database connection string must be an administrator of the database.

The user executing the tool must have permission to create/modify the XML file name provided. If the file exists, the contents will be overwritten.

#### 5.4.1.2.4 Back Up the WebView 3 User Notes Area

**NOTE :** It is important to back up the User Notes area before running this tool.

The location of the User Notes are for both Public and Private notes and can be found by selecting the Configuration / Notes item on the WebView 3 main menu.

The user notes, public and private, are normally stored by default in a DATA directory under the web site path. This can be configured by the user to point to a different location. The program reads this configuration information for the notes path from information in the web configuration file associated with the web server.

#### 5.4.1.2.5 Import the User Notes to WebView 3

The Import tool is a console application and is run from a command prompt. Open up a command prompt and navigate to the WebView 3 install Bin folder where the Import tool has been installed.

The following is the definition for the Import tool

##### 5.4.1.2.5.1 NotesMigrationTool.Import

<b>Syntax</b>	NotesMigrationTool.Import.exe <input notes file name> <web server path>
<b>Parameters</b>	<b>input notes file name</b> – path name to the XML file produced by the export tool. <b>web server path</b> – path name to the web server install location.
<b>Remarks</b>	The <input notes file name> is the path name of an XML file produced by the export tool containing the user notes from the WebView 2.2 implementation. If the file does not exist, an error is output and the execution is terminated. The <web server path> is the location of the WebView 3 web site.

The following is an example of the import command

```
NotesMigrationTool.Import.exe c:\data\linkone\notes.xml c:\inetpub\wwwroot\LinkOne3
```

#### 5.4.1.2.6 Import Remarks

Backing up any User Notes already added to the WebView 3 installation is important in case of any overwriting of existing User Notes by the tool.

Copy the XML user notes file produced by the WebView 2 export program to a location which is accessible to the WebView 3 import program.

The User executing the program must have write permission to where the User Notes are stored which is either the default web site DATA directory or the location defined in the Notes configuration item if different from the default. If the default directory is used in this example, the location might be

```
C:\inetpub\wwwroot\LinkOne3\Data\PublicNotes  
C:\inetpub\wwwroot\LinkOne3\Data\PrivateNotes
```

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The web server path to be used as the second parameter is the install location of the LinkOne web server. In the example above, the location might be

**C:\inetpub\wwwroot\LinkOne3**

## 5.5 Library Synchronizer

LinkOne WebView uses local LinkOne book libraries, either on the local disk, or on network file share. Each of these libraries can be synchronized with a master library to ensure consistency between libraries. For example, synchronizing the a library to the master library of the book publisher.

Synchronizing can be done manually from a command prompt on the web server, by running the **~/bin/BookSync-Tool.exe** tool. Using this tool allows synchronizing from scripts or scheduled tasks. The command line arguments are described below.

**BookSyncTool** performs a complete library synchronize, and the result leaves the local library with a mirror copy of the master library, including adding new books locally that are now found in the master library and removing old local books no longer found in the master library. This is the equivalent of using the LinkOne WinView BookSync application, and setting the local library Synchronization Type to Synchronize All Books, and then performing a Synchronize Library.

Argument	Description
<b>-library=path</b>	<p>The path to the target library that is to be synchronized to. The path can be in the form:</p> <ul style="list-style-type: none"> <li>- Absolute path (eg: C:\library, or \\server\share)</li> <li>- Relative path to the web site (eg: Data\Libraries\Mincom, or ~/Data\Libraries/Mincom)</li> </ul> <p>The argument is mandatory and there is no default value.</p>
<b>-sync=path</b>	<p>The path to the source library that is to be synchronized from. The path can be in the form:</p> <ul style="list-style-type: none"> <li>- http or https path (eg: http://www.domain.com/booklibrary)</li> <li>- unc path (eg: \\server\share\library)</li> <li>- local path (eg: D:\masterlibrary)</li> </ul> <p>The argument is optional and if omitted it will be taken from the remote.config file found in the target library path. The remote.config file is configured and written by the LinkOne WinView BookSync application.</p>
<b>-reporting=None Errors Summary Detailed</b>	<p>The reporting level used to write to the console and to any specified report file.</p> <p>The argument is optional and the default value is None.</p>

<b>-report=file</b>	<p>The report file used when the reporting level is not None. The file can be in the form:</p> <ul style="list-style-type: none"> <li>- Absolute path (eg: C:\booksync.log, or \\server\share\booksync.log)</li> <li>- Relative path to the web site (eg: Data\Log\booksync.log, or ~/Data/Log/booksync.log)</li> </ul> <p>The argument is optional and there is no default value.</p>
<b>-codepage=#</b>	<p>The code page for decoding any old books.</p> <p>The argument is optional and the default value is the current system code page from <b>Code Page for Non-Unicode Programs</b> in <b>Control Panel &gt; Regional Settings</b>.</p>
<b>-proxyusername=username</b>	<p>The user name that the <b>BookSyncTool</b> will use for proxy authentication.</p> <p>The argument is optional and there is no default value.</p>
<b>-proxypassword=password</b>	<p>The password that the <b>BookSyncTool</b> will use for proxy authentication.</p> <p>The argument is optional and there is no default value.</p>
<b>-username=username</b>	<p>The user name that the <b>BookSyncTool</b> will use for site authentication to access the remote library.</p> <p>The argument is optional and there is no default value.</p>
<b>-password=password</b>	<p>The password that the <b>BookSyncTool</b> will use for site authentication to access the remote library.</p> <p>The argument is optional and there is no default value.</p>

## 6 Samples

### 6.1 Silent Login

Included in the LinkOne WebView web application is a sample silent login page which can be used to bypass the login page. To use this page the caller must pass the user name, password and any login options as query parameters on the URL, or as form parameters in a post. If the passed user name and password can't be authenticated, then the user will be re-directed to the login page.

The silent login page can be found at `~/SilentLogin.aspx`.

Login parameters that can be passed are:

Parameter	Description	Default Value
uid	The user name to login as. For example <b>uid=myusername</b>	
pwd	The password for the given user. For example <b>pwd=mypassword</b>	
language	The preferred book language. For example <b>language=de</b>	en
theme	The web site theme to use. For example <b>theme=blue</b>	default
selectionlist	The selection list configuration to use. For example <b>selectionlist=default</b>	default
book	The book to open, given as <publisher_code>/<book_code>. For example <b>book=mypublisher/mybook</b> If a book is specified then it will be opened upon a successful login, otherwise the browser will be directed to the browse books page.	
page	The page to open, given as <page_reference>. For example <b>page=page1</b> If a page is specified then a book must also be specified. The page will be opened upon a successful login.	
item	The item to highlight, given as <item_identifier> For example <b>item=11223344</b> If an item is specified then a book and page must also be specified. The item must be present on the specified page, or no item will be highlighted.	
part	The part to highlight, given as <part_number> For example <b>part=123.456-789</b> If a part is specified then a book must also be specified, and page and item are ignored. If the part is found more than once in the book, then the first part found is highlighted.	

option	<p>Any filter to apply to the book. Filters are formatted as &lt;option_code&gt;:&lt;option_value&gt;.</p> <p>For example <b>option=s:off</b></p> <p>For multi-select options, values are separated by a '/' character.</p> <p>For example to set values <b>a</b>, <b>b</b> and <b>c</b> for option <b>myoption</b>, the parameter is <b>option=myoption:a/b/c</b></p> <p>Supply one <b>option=</b> parameter for each option to be set.</p> <p>For example <b>option=s:off&amp;option=sn:12345</b></p>	
--------	---	--

Examples of query parameters on a URL:

```
http://server/linkone/silentlogin.aspx?uid=admin&pwd=admin&theme=blue
http://server/linkone/silentlogin.aspx?uid=user&pwd=user&language=de&book=pub/book&option=sn:12345&model:coldweather
```

Example of query parameters in a post:

```
<html>
<body>
  <form action="SilentLogin.aspx" method="post">
    <input name="uid" value="user"/>
    <input name="pwd" value="user"/>
    <input name="language" value="de"/>
    <input name="book" value="pub/book"/>
    <input name="option" value="sn:12345"/>
    <input name="option" value="model:coldweather"/>
  </form>
</body>
</html>
```

## 6.2 Pricing Selection List

One of the standard selection lists installed with LinkOne WebView is a sample pricing selection list. To use this selection list, choose it at the login web page from the available selection list types.

When any part is added to the selection list, a constant price of \$100 is shown. There are two parts to this operation:

1. A Price field in the selection list field mapping fields found at **~/SelectionLists/SamplePricing/selectionlist.xml** which is declared as a simple text field (not mapped from a field in the added part).
2. Server-side code which sets the value of the Price field to \$100 when a part is added. This code is in **~/SelectionLists/SamplePricing/Default.aspx.cs**.

Extensions to this simple sample would be to use a price lookup through an external system, or to add other fields to the selection list such as Stock On Hand.

## 6.3 Stock on Hand

One of the standard selection lists installed with LinkOne WebView is a sample Stock on Hand selection list. To use this selection list, choose it at the login web page from the available selection list types.

When any part is added to the selection list, the stock on hand information . There are two parts to this operation:

1. "Estimated SOH" field in the selection list field mapping fields found at **~/SelectionLists/StockOnHand/selectionlist.xml** which is declared as a simple text field (not mapped from a field in the added part).
2. Server-side code which sets the value of the Estimated SOH field by checking for the existence of the part number information in the **~/SelectionLists/StockOnHand/DemoSOH.xml** file. If the part number exists more than once in the file, the value "Multiple WH" will be displayed. If the part number does not exist in the file, the value "No Details" will be displayed. This code is in **~/SelectionLists/StockOnHand/Default.aspx.cs**.

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Approved	Public		A	en	39/113

## 6.4 Work Request

One of the standard selection lists installed with LinkOne WebView is a work request selection list. To use this selection list, choose it at the login web page from the available selection list types.

This selection list demonstrates how a work request or work order could be generated in another system using the part information contained in the selection list.

On the selection list, there is an additional button called "Work Request", that when selected, presents the user with a form to add additional information for the creation of the Work Request such as Equipment Reference and Description. When the user then selects "Create Work Request", a sample confirmation screen is then displayed, illustrating the process that could be implemented.

The server side code that implements this selection list can be located in `~/SelectionLists/WorkRequest`.

STATUS	SECURITY LEVEL	DOCUMENT ID	REV.	LANG.	PAGE
Approved	Public		A	en	40/113



## 7 Walkthroughs

### 7.1 How To Authenticate Using Active Directory

LinkOne WebView is capable of using Forms Authentication to authenticate a user against an Active Directory. To use Active directory to authenticate users, edit the `~/web.config` file and make the following changes:

1. Un-comment the Active directory connection string, and set the connection string to your active directory:

```
<add name="ADService" connectionString="-Insert Connection String Here-" />
```

2. Comment out the **AspNetSqlMembershipProvider** provider from the membership providers section.
3. Set the **defaultProvider** attribute in the membership element to **AspNetActiveDirectoryMembershipProvider**:

```
<membership defaultProvider="AspNetActiveDirectoryMembershipProvider" />
```

4. Un-comment the **AspNetActiveDirectoryMembershipProvider** provider in the membership providers section. For information regarding configuration settings for the Active Directory Membership Provider please see <http://msdn.microsoft.com/en-us/library/system.web.security.activedirectorymembershipprovider.aspx>. The following is a sample **AspNetActiveDirectoryMembershipProvider** connection element:

```
<add name="AspNetActiveDirectoryMembershipProvider" type="System.Web.Security.ActiveDirectoryMembershipProvider, System.Web, Version=2.0.0.0, Culture=neutral, PublicKeyToken=b03f5f7f11d50a3a" connectionStringName="ADService" connectionUsername="CN=ADUser,OU=Users,O=WebView" connectionPassword="ADUserPassword" connectionProtection="None" enableSearchMethods="true" requiresUniqueEmail="false" maxInvalidPasswordAttempts="5" minRequiredPasswordLength="4" minRequiredNonalphanumericCharacters="0" passwordStrengthRegularExpression="" enablePasswordReset="true" requiresQuestionAndAnswer="true" attributeMapPasswordQuestion="pwdQuestion" attributeMapPasswordAnswer="pwdAnswer" attributeMapFailedPasswordAnswerCount="badPwdCount" attributeMapFailedPasswordAnswerTime="badPwdTime" attributeMapFailedPasswordAnswerLockoutTime="badPwdLockoutTime" />
```

5. Un-comment the **machineKey** element in the system web section. Note: for security purposes it is recommended that the encryption and decryption key pair are replaced with a unique set. In order to use Active Directory authentication the machine key cannot be auto generated. For more information regarding the **machineKey** element please see <http://msdn.microsoft.com/en-us/library/w8h3skw9.aspx>

In order to use Active Directory to administer users, the web application requires an account with privileges to add, remove and update users in the Active Directory data store. Additionally, custom configuration of the Active Directory schema may be required in order to map required attributes.

**NOTE:** If Active Directory is used for membership, then in order to allow administrators to reset user passwords via the `~/Configuration/ConfigureUsers.aspx` web page, a security question and answer pair must be provided for the user and the administrator will be required to correctly answer the question. If this is not possible, then the **allowPasswordReset** and **requiresSecurityQuestionAndAnswer** should be set to false. This will remove the Authorization pane from the `~/Configuration/ConfigureUsers.aspx` web page.

### 7.2 How To Determine Chosen Microsoft .Net Version

For performance reasons, the use of .Net 3.5 is currently recommended. However using different .Net versions requires different web configurations. At install time the installer will install a `~/web.config` file that is compatible with the Microsoft .Net version that is configured for the Application Pool on IIS7, 8, or the selected web site on IIS 6. Note that when running with Microsoft .Net 3.5 SP1, the CLR version is actually 2.0.

The table below outlines what version of the web.config file will be used by default for different configurations.

IIS Version	Microsoft .Net 3.5 SP1 Installed?	Web Site Default Asp.Net Version	Default Application Pool CLR Version	Installed web.config file
6	Yes	2	-	Microsoft .Net 3.5 configuration
6	Yes	2	-	Microsoft .Net 3.5 configuration

7, 8	Yes	-	2	Microsoft .Net 3.5 configuration
7, 8	Yes	-	2	Microsoft .Net 3.5 configuration

In addition to installing the web.config file, the installer also adds a web.net35.config file to the application folder to allow for simple re-configuration when changing between versions of Microsoft .Net.

### 7.3 How To Authenticate Using Windows Authentication

LinkOne WebView is capable of using Windows Authentication to authenticate users. To use Windows authentication to authenticate users, edit the `~/web.config` file and make the following changes:

1. Replace the Authentication tag with:

```
<authentication mode="Windows" />
```

Note: In order for a Windows user to be able to log into LinkOne WebView the domain qualified user name must be added to the allowed users roles. This can be performed by navigating to the `~/Configuration/ConfigureUsers.aspx`.

### 7.4 Creating a Web Site Theme

LinkOne WebView supports using themes to create a customized look and feel for the web site. To achieve a customizable look and feel LinkOne WebView utilizes the Microsoft Asp.Net theme architecture. More information about using Asp.net themes can be found at <http://msdn.microsoft.com/en-us/library/wcyt4fxb.aspx>.

To modify the default theme to show a new organizational banner:

1. Copy the `~/App_Themes/Default` folder to another folder in `~/App_Themes`, and give the copied folder the name of the new theme, e.g. **MyTheme**.
2. Replace `~/App_Themes/MyTheme/images/product.png` with the desired corporate logo.
3. Edit the `~/web.config` file to use the new theme by replacing the word **Default** with the name of your new theme in the following 2 lines e.g.

```
<add name="SiteTheme" type="System.String" defaultValue="MyTheme"/>
and
<pages theme="MyTheme">
```

The theme colors can also be modified by editing the CSS colors such as #005EA8, #C8D9ED or #005EA8 found in `~/App_Themes/<new_theme>/StyleSheet.css`.

### 7.5 How To Add New Translations

LinkOne WebView supports adding translations to web site pages. Standard Microsoft Asp.net practices are used to manage web site translations, and more information can be found at <http://msdn.microsoft.com/en-us/library/c6zzy3s9.aspx>.

To add or modify translations to a web page (.aspx file):

1. Add the desired content to the .aspx web page and add the **meta:resource** key attribute to the element.

For example to include a translatable label in a page add the following element:

```
<asp:Label runat="server" id="MyLabel" meta:resourceKey="MyLabel" Text="The Label Text" />
```

2. In the same folder that contains the .aspx web page ensure there is a folder called **App\_LocalResources**. Also ensure that the folder contains a resource file (.resx file) that has the naming convention of `<aspx_file_name>.<language_code>.resx`.
3. Add the translated values to the resource file as **data** elements with a **name** attribute value of the form `<resource_key>.<property>`.

For example to translate the text value of the label above, add the following content:

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```
<data name="MyLabel.Text" xml:space="preserve">
    <value>My Translated Label Text</value>
</data>
```

## 7.6 How To Change the Book or Selection List Menus

The menus on the LinkOne WebView book viewer web page can be changed by adding, removing, or modifying menu items. This allows adding new functionality or removing unwanted functionality.

Each **asp:MenuItem** in the book viewer web page at `~/Viewer/book.aspx` and the selection list web pages at `~/SelectionLists/<name>/default.aspx` has these special attributes:

asp:MenuItem Attribute	Purpose
Text	The text is translated within the associated <b>App_LocalResources/&lt;page_name&gt;.&lt;language_code&gt;.resx</b> for the associated language.
ImageUrl	This attribute references an image in the current theme's web site folder.
Value	<p>This attribute is used to check access to the menu item through authorization. If the user is not authorized to access the menu, then the menu item is removed.</p> <p>The values can be:</p> <ul style="list-style-type: none"> <li>• ? for any user to access;</li> <li>• * for any authenticated user to access;</li> <li>• a specific role for only those users with in that role to access</li> </ul>

## 7.7 How To Change the Mapped Selection List Fields

LinkOne WebView supports a customizable selection list field map to suit the individual needs of the organization.

To modify a selection list field map, firstly locate the **selectionlist.xml** file in the folder of the selection list being used. For example for the default selection list, this will be `~/SelectionLists/Default/selectionlist.xml`. The **selectionlist.xml** file contains the field definitions and the field mappings that map part fields to selection list fields.

To change a part field that is mapped to a selection list field:

1. Locate the `<selectionlist>` element for the wanted language (different fields can be mapped depending on the user language).
2. Now within that, locate the `<map>` element for the wanted source book (different fields can be mapped depending on the viewed publisher or book).
3. Now within that, locate the `<mapfield>` element that names the destination selection list field.
4. Now update the source part field name to the new source name.

Multiple `<map>` elements can be added, to target specific publishers or books.

Note: Localized selection list field mappings do not inherit from the selection list definition from the neutral language, so each column and field mapping to be used must be defined for each available language in order to be universally used.

## 7.8 How To Create a Custom Selection List

To create a customized selection list:

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1. Create a new folder to contain the selection list in the `~/SelectionLists` folder.
2. Implement your custom selection list behavior in the new folder. **Tip:** Copy the contents of the `~/SelectionLists/Default` selection list folder and use it as a starting point.
3. Login to LinkOne WebView and browse to `~/Configuration/ConfigureSelectionLists.aspx`.
4. Add the newly created selection list, giving it a unique name, and using the folder path created in step 1.
5. Specify whether or not the selection list is persisted across sessions.
6. Click **Add** to add the new selection list configuration.

## 7.9 How To Create a Custom Security Provider

Identifying a user and what access rights and policies they have, is the functionality of the security provider. A default security provider is supplied, with a class name of `Mincom.LinkOne.WebView.WebServer.Security.Principal`. This class provides:

- the name of the current user, as identified by `System.Web.HttpContext.Current.User.Identity.Name`
- the allowed books to access, as identified by `Mincom.LinkOne.WebView.Services.SecurityService.Current.AllowedBooks`
- the allowed notes to access, as identified by `Mincom.LinkOne.WebView.Services.SecurityService.Current.AllowedNotes`
- the policy settings, as identified by `Mincom.LinkOne.WebView.Services.SecurityService.Current.GetUserPolicyResolved()`

LinkOne WebView determines the class name of the provider to use, by looking at the `Mincom.LinkOne.WebView.WebServer.Services.SecurityService.PrincipalType` appsetting in the `Mincom.LinkOne.WebView.config` file. The default security provider is used if no class name is given, or the given class can't be constructed.

The given class must implement `Mincom.LinkOne.Dom.IPrincipal2`.

Following is a sample implementation of this interface.

```
using System;
using System.Collections.Generic;
using System.Web;
using Mincom.LinkOne.Dom;
using Mincom.LinkOne.Dom.Notes;
namespace Mincom.LinkOne.WebView.Samples
{
    public class Principal : Dom.IPrincipal2
    {
        private string _userId;
        public Principal()
        {
            _userId = HttpContext.Current.User.Identity.Name.ToLowerInvariant();
        }
        public string UserId
        {
            get { return _userId; }
        }
        public bool CanAccessBook( string publisherCode, string bookCode, IList<string> categories )
        {
            bool canAccessBook = false;
            // check if the user is "admin"
            if( _userId == "admin" )
            {
                canAccessBook = true;
            }
            // check if the user is "fred"
            else if( _userId == "fred" )
            {
                // if the publisher code is "Kubota"
                // bookCode is "101a0001"
            }
        }
    }
}
```

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```

        // number of categories = 1
        // first category = "tb"
        if( publisherCode.ToLowerInvariant() == "kubota"
            && bookCode.ToLowerInvariant() == "101a0001"
            && categories.Count == 1
            && categories[ 0 ].ToLowerInvariant() == "tb" )
        {
            // set the book as accessible by the user
            canAccessBook = true;
        }
    }
    return canAccessBook;
}
public IList<string> Licenses
{
    get
    {
        List<string> result = new List<string>();
        // if the user is "admin"
        if( _userId == "admin" )
        {
            result.Add( "Administrators-License1" );
            result.Add( "Administrators-License2" );
            result.Add( "ABC-ABC-ABC-ABC-ABC-ABC" );
        }
        // if the user is "fred"
        else if( _userId == "fred" )
        {
            result.Add( "LicenseValue1-A1" );
            result.Add( "LicenseValue2-A2" );
            result.Add( "LicenseValue3-A3" );
        }
        return result;
    }
}
public bool CanAccessNote( INote note )
{
    return true;
}
public bool CanAccessCategory( ICategory category )
{
    return true;
}
public bool IsPolicyAllowed( string policy )
{
    return false;
}
public object Security
{
    get { return null; }
}
public string CacheKey
{
    get { return String.Empty; }
}
public string PrivateNotesDirectory
{
    get { return Mincom.LinkOne.WebView.WebServer.Services.NoteService.Current.PhysicalPrivateNotesDirectory; }
}
public string PublicNotesDirectory
{
    get { return Mincom.LinkOne.WebView.WebServer.Services.NoteService.Current.PhysicalPublicNotesDirectory; }
}
}

```

```
}
}
```

## 7.10 How To Create a Custom Policy

Additional policies may be added to LinkOne WebView for whatever reason you need. To create additional policies, complete the following steps:

1. Create the policy for all roles and users by adding tags to `~/Web.config` in the section **configuration/system.web/profile/properties**.

The policy name must be prefixed with **Policy**.

The type must be **System.Boolean**.

For example, adding a policy named **AllowPartPurchasing** looks like:

```
<?xml version="1.0"?>
<configuration>
...
<system.web>
...
  <profile enabled="true">
    ...
    <properties>
      ...
      <add name="PolicyAllowPartPurchasing" type="System.Boolean" defaultValue="False" />
    </properties>
  </profile>
...
</system.web>
...
</configuration>
```

2. Provide a user readable name for policy configuration by adding a localized policy message to the local resource files (.resx files) of the Configure Users and Configure Roles controls.

The English resource files for these controls are `~/Controls/App_LocalResources/ConfigureUsers.ascx.resx` and `~/Controls/App_LocalResources/ConfigureRoles.ascx.resx`.

The controls can be viewed on the `~/Configuration/ConfigureUsers.aspx` and `~/Configuration/ConfigureRoles.aspx` web pages.

If no localized policy message is found then the policy name itself will be displayed.

The policy message resource key must be prefixed with **PolicyMessage\_**.

For example, the **AllowPartPurchasing** policy will have a resource key of **PolicyMessage\_AllowPartPurchasing** and will look like:

```
<data name="PolicyMessage_AllowPartPurchasing" xml:space="preserve">
  <value>Allow purchasing of parts</value>
</data>
```

3. To make use of the policy programmatically, use the name of the policy and make a call to:

```
Mincom.LinkOne.WebView.WebServer.Services.SecurityService.Current.IsPolicyAllowed("AllowPartPurchasing")
```

## 7.11 How To Share Notes with LinkOne WinView

The notes folders for LinkOne WebView are configured on the `~/Configuration/ConfigureNotes.aspx` web page.

The private notes folder should be:

- For Windows XP, and Windows 2003:  
**C:\Documents and Settings\{0}\My Documents\LinkOne\Notes**
- For Windows Vista, Windows 2008, and Windows 7:

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**C:\Users\{0}\Documents\LinkOne\Notes**

The public notes folder should be:

- For Windows XP, and Windows 2003:  
**C:\Documents and Settings\All Users\My Documents\LinkOne\Notes**
- For Windows Vista, Windows 2008, and Windows 7:  
**C:\Users\Public\Documents\LinkOne\Notes**

Additional steps required are:

- Set permissions on each Notes folder to allow the ASPNET (XP, 2003) or IUSR (Vista, 2008, 7) account to read and write the folder contents.
- Ensure the Windows account name of each user matches the WebView account name, this is because the {0} in the folder name above is substituted with the user account name.

## 7.12 How To Use SQL Server Instead of SQL Express

The standard installation makes use of SQL Express for its database server. The Express editions are cut down versions of the Server editions, but are ideally suited to the membership, role, and profile management required for LinkOne WebView.

In cases where SQL Server really is preferred, or in cases where a shared instance is required for multiple LinkOne WebView web servers, then follow the steps below

1. Complete a standard installation of LinkOne WebView.
2. Move the databases to SQL Server.
  1. Start SQL Server Management Studio
  2. Attach the database `~/App_Data/ASPNETDB.mdf` as ASPNETDB
  3. Attach the database `~/App_Data/LINKONEDB.mdf` as LINKONEDB
  4. Create a login for **NT AUTHORITY\IUSR** and **NT AUTHORITY\NETWORK SERVICE** (i.e. the user or group that the IIS application Pool is running as)
  5. Modify the login **User Mappings** and map ASPNETDB and LINKONEDB, giving each mapping the **dbo** role
3. Update the location of the databases in the LinkOne WebView configuration.
  1. Modify `~/web.config`.
  2. Uncomment the SQL server connection string for LocalSqlServer (modify the data source to the SQL Server instance name if not the default instance)
  3. Uncomment the SQL server connection string for LinkOneSqlServer (modify the data source to the SQL Server instance name if not the default instance)
  4. Comment out the SQL Express connection string for LocalSqlServer
  5. Comment out the SQL Express connection string for LinkOneSqlServer

## 7.13 How to Install Mass Library Replication

In this section, you will find information on configuring the replication of LinkOne Libraries from one location to another. An example of this intended usage might be the replication of whole libraries between remote LinkOne WebView web servers. Rsync will be used via an ssh shell on the server machine.

This is accomplished by using the defacto standard in mass file replication, Rsync. Rsync allows only file changes to be transmitted across the wire, enabling fast and efficient transfer.

If you need further guidance, contact your LinkOne reseller or **Hitachi Energy Enterprise Software Customer Support** <mailto:CustomerCare.ES@hitachienergy.com> (if you purchased LinkOne directly from Hitachi Energy). You can get help in answering your questions as well as provide feedback and suggestions on the **Hitachi Energy Website** (<https://www.hitachienergy.com/>).

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### 7.13.1 Cygwin, Rsync and OpenSSH Installation

These instructions should be followed to install Cygwin, Rsync and OpenSSH on both the client and server machines. These instructions were compiled using Cygwin setup.exe version 2.769 and cygwin.dll version 1.7.11-1. These instructions may not be accurate for other versions.

Download Cygwin's setup.exe from <http://www.cygwin.com>.

1. On the server machine: Login under a **LOCAL** Administrator account (**NOT** a domain account).  
On the client machine: Login using any account.
2. Run setup.exe as administrator. If you are not part of the Administrator group, on setup.exe use "Right click -> run as Administrator".
3. Once in the installer press **Next** 3 times.
4. Select a local package directory choose a temporary folder to store the packages which can be deleted after install is complete.
5. Press **Next** twice.
6. Select any mirror.
7. Press **Next**.
8. When asked what components to install select the following by clicking on "**Skip**" so that a cross appears in the "**Binary**" column:
  - +Admin -> Cygrunsrv
  - +Net -> Rsync
  - +Net-> OpenSSH
9. Press **Next**.
10. Press **Finish**.
11. Add the following to the end of the PATH system environment variable "**;%c:\cygwin\bin**"

### 7.13.2 OpenSSH Server Configuration

These instructions configure an SSH server on the server machine.

1. Open the Cygwin terminal by selecting "Start -> All Programs -> Cygwin -> Cygwin Terminal".
  2. Type "**ssh-host-config**" and press **Enter**.
  3. Answer "**yes**" to all questions until the next question.
  4. When the script asks for the value of CYGWIN for the daemon, type "**ntsec**" and press **Enter**.
  5. Answer "**no**" to the question "**do you want to use a different name?**".
  6. Answer "**yes**" to all further questions until the next step.
  7. Enter an appropriate password when asked
- NOTE** : Please be sure that this password matches the password rules given on your machine.
8. Type "**cyglsa-config**" and press enter.
  9. Reboot the computer
  10. Open the Cygwin terminal again.
  11. Type "**net start sshd**" and press **Enter**.
  12. If the above command fails go into "Control Panel -> Administrative tools -> Services", double click on the "CYGWIN sshd" service and reconfigure the username and password under the "Log On" tab. Try step 11 again.
  13. Type "**mkpasswd -cl > /etc/passwd**" and press **Enter**.
  14. Type "**mkgroup --local > /etc/group**" and press **Enter**.
  15. Type "**ssh localhost**" and press **Enter**.

This should connect to the local ssh server.

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### 7.13.3 SSH Public Key Authentication

1. Open a Cygwin terminal on the client machine.
2. Type "**ssh-keygen -t rsa**" and press **Enter**.
3. Press **Enter** when asked for any inputs.
4. Type

```
Tscp /.ssh/id_rsa.pub serverusername@hostname:/home/serverusername/.ssh"
```

Where:

**serverusername** is any username on the server machine. (this is the account Rsync will run under).

**hostname** is the server machine name.

5. Open an RDP session to the server machine.
6. Open an explorer window and browse to "c:\cygwin\home\**serverusername**\.ssh".
7. Create two new text files called "**authorized\_keys**" and "**authorized\_keys2**"

There is no file extension!

8. Open the file "**id\_rsa.pub**" in notepad and copy all contents to the above two files.
9. On the client machine type "ssh **serverusername@hostname**" and press **Enter**.

You should now be connected to the server via ssh public key authentication without having to enter a password.

### 7.13.4 Rsync Client Configuration

The following instruction can be configured as a scheduled task on the client machine to replicate the library at "**c:\linkone\library**" from the server to the client directory "**c:\linkone**" via an ssh shell on the server.

```
rsync -az --delete serverusername@hostname:/cygdrive/c/linkone/library /cygdrive/c/linkone/
```

Where:

**serverusername** is any username on the server machine. (this is the account Rsync will run under).

**hostname** is the server machine name.

## 7.14 How To Install on x64 Windows

LinkOne WebView is a 32bit web application, and can't run on 64bit Windows 2003 or 64bit Windows XP without enabling 32bit operation on the server.

Once LinkOne WebView is installed, follow the instructions below to enable 32bit operation. These instructions and how to disable 32bit operation can be found at <http://support.microsoft.com/kb/894435>.

**NOTE:** This only applies to Windows Server 2003 x64 and Windows XP x64.

```
cscript %SYSTEMDRIVE%\inetpub\adminscripts\adsutil.vbs SET  
W3SVC/AppPools/Enable32bitAppOnWin64 1  
%SYSTEMROOT%\Microsoft.NET\Framework\v2.0.50727\aspnet_regiis.exe -i
```

## 7.15 How To Configure the Web Site for HTTPS

The standard installation assumes a web site address with a HTTP address. If you alter the web site and serve it from a HTTPS address, then follow the steps below

1. The Bindings for the site must be modified to include HTTPS. As HTTPS requires a SSL certificate, you must acquire one from a signing authority or create a Self Signed Certificate. Note: Self Signed Certificate may have a limited lifespan and may not be automatically accepted by the end user browser.
2. For the offline application to work in production, the site should be only accessed through HTTPS protocol and the SSL certificate should be acquired from a signing authority as the self signed certificate will not work.

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3. For **IIS6 only** update the behaviourConfiguration attribute for the service connections in the LinkOne Webview configuration:
  1. Modify **~/web.config**
  2. Comment all serviceMetadata for IIS7, 8 (HTTP and HTTPS) and IIS6 (HTTP) containing behaviourConfiguration="serviceBehaviour"
  3. Uncomment all serviceMetadata for IIS6 (HTTP) without a behaviourConfiguration attribute
4. Update the service connection bindings in the LinkOne WebView configuration:
  1. Modify **~/web.config**.
  2. Comment serviceMetadata and all endpoints that are preceded with <!-- Http web site support -->
  3. Uncomment serviceMetadata and all endpoints that are preceded with <!-- Https web site support -->

The following are the only valid combinations of system configuration for HTTPS:

HTTPS configured in IIS?	Browsing with HTTPS address?	HTTPS configured in web.config?
no	no	no
yes	no	no
yes	no	yes
yes	yes	yes

## 7.16 How To Configure IIS 7

The standard installation assumes IIS 7 is in use. If you are using IIS 8 or later, then follow the steps below.

1. Update the staticContent section in web.config by removing mimeMap attributes for .woff and .woff2:
  1. Open **~/web.config**
  2. Locate the <staticContent> section
  3. Remove the comments around : **<mimeMap fileExtension=".woff" mimeType="application/woff"/>**
  4. Remove the comments around: **<mimeMap fileExtension=".woff2" mimeType="application/woff2"/>**

## 7.17 How To Configure for Multiple Web Sites

The standard installation assumes your web Server is providing a single web site. If it is providing multiple web sites, then follow the steps below to edit the **serviceHostingEnvironment** data.

1. If you are using ASPNET 4:
  1. Add the line
 

```
<serviceHostingEnvironment multipleSiteBindingsEnabled="true" />
```

2. If you are running ASP.NET 2.0, 3.0 or 3.5:

1. Uncomment the lines
 

```
<!--baseAddressPrefixFilters>
  <add prefix="http://localhost"/>
</baseAddressPrefixFilters-->
```

and change the prefix as required, e.g.

```
<baseAddressPrefixFilters>
  <add prefix="http://LinkOne_Prd"/>
</baseAddressPrefixFilters>
```

## 7.18 How To Configure DBMan Configuration Manager

1. Start LinkOne WebView 3 and login with administrator privileges.
2. Browse to the **Configuration > Integration**.
3. Check the "Enable Configuration Manager" check box.
4. In the "Configuration Manager Assembly" box enter **Mincom.LinkOne.DbMan**.
5. In the "Configuration Manager Connection String" box enter **SampleDB**. For DBMan the connection string is a path to where the sample CSV files are located. This path is relative to the **Mincom.Linkone.DBMan** assembly.
6. Click the Save button.
7. DBMan is now ready to be used as a Configuration Manager.

**Note:** If no connection string is entered, then DBMan will default to using **SampleDB** anyway.

## 7.19 How To Use DBMan Configuration Manager to Open a Book Via Equipment Id

This sample assumes that DBMan has been configured (see How To Configure DBMan Configuration Manager) and that the DBMan database is the default installed database, and the demo library shipped with LinkOne WebView 3 is enabled.

Before undertaking this sample ensure that a user account is available that has access to view the all books from the "komatsu" publisher in the demo library.

To open a book via equipment id, LinkOne WebView use the SilentTest.aspx page in the root web site (this allows the user to open by codes or equipment id):

1. Browse to **~/SilentTest.aspx** (e.g <http://localhost/LinkOne/SilentTest.aspx>).
2. Enter the user credentials that have access to the komatsu books.
3. In the **Equipment Id** field enter "dozer".
4. Click the **Login** button.
5. The komatsu / d355-a dozer book will open.  
Notice that the TCSN filter has been set to K1000 as this is a filter defined in the DBMan database.
6. Browse again to the **~/SilentTest.aspx** as in step 1.
7. Enter the user credentials that has access to the komatsu books
8. In the **Equipment Id** field enter "dozer1".
9. Click the **Login** button.
10. The komatsu / d355-a dozer book will open.  
Notice that the TCSN filter is now set to K1500.
11. On the parts list click the "Engine" link.
12. The komatsu / sa6d155 engine book will open.  
This book opens because the "Engine" link has a slot reference to "Engine2" in the DBMan slot table. Notice that the "SN" filter is set to "20500" because this is a temporary filter that is specified in the DBMan database for the "Engine2" Equipment Id.

## 7.20 How To Configure Book Libraries on a Network Share

In order to access a book library stored on a network share, WebView requires read access to that network share. If the book library requires re-indexing, WebView also requires write access.

In some circumstances security restrictions may prevent the default account that WebView runs with from accessing the network share. In this scenario WebView needs to use an identity that is known to both the server running Web-View and the server hosting the network share. There are two methods that can be used to achieve this.

The first method simply involves granting access to the Everyone account on the network share. This allows access to the service account used by WebView.

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The second method involves running WebView using a different identity. After installing WebView:

1. Decide on an identity that will be used to run WebView. It must be known to both the server running WebView and the server hosting the network share.
  - a. Give the selected identity read and write privileges to the WebView installation folder.
  - b. Give the selected identity read and write privileges to the files in the network share.
  - c. Give the selected identity read and write privileges to the network share itself.
2. Reconfigure the WebView application pool to use the selected identity:
  - a. Open IIS Configuration Manager.
  - b. Identify the application pool being used by WebView (usually LinkOne\_AppPool).
  - c. Change the process identity to the selected identity for the identified application pool.
3. Configure the WebView databases to allow access for the selected identity:
  - a. If using Microsoft SQL Express:
    1. If the SQL Express Management Studio has not previously been installed, install it by running the Microsoft Web Platform Installer. Select **Web Platform Database Customize**, select **SQL Express Management Studio**. Click **Install**.
    2. Open SQL Express Management Studio and connect to the SQL Express instance (usually <machine name>\SQLEXPRESS).
    3. Attach the database `~/App_Data/ASPNETDB.mdf` as ASPNETDB
    4. Attach the database `~/App_Data/LINKONEDB.mdf` as LINKONEDB
    5. Create a login to the SQL Express database for the selected identity.
    6. Modify the login User Mappings and map ASPNETDB and LINKONEDB, giving each mapping the dbo role.
  - b. If using Microsoft SQL Server see the "How To Use SQL Server Instead of SQL Express" walkthrough and configure for the selected identity.
4. Update the location of the databases in the WebView configuration:
  1. Modify `~/web.config`.
  2. Uncomment the SQL server connection string for LocalSqlServer (modify the data source to the SQL Server / SQL Express instance name if not the default instance).
  3. Uncomment the SQL server connection string for LinkOneSqlServer (modify the data source to the SQL Server / SQL Express instance name if not the default instance).
  4. Comment out the SQL Express connection string for LocalSqlServer
  5. Comment out the SQL Express connection string for LinkOneSqlServer

## 7.21 How to Configure SharePoint Integration

**NOTE :** The SharePoint functionality has been **deprecated** at 3.25 and will be removed in future releases. If you are using this functionality, please contact LinkOne Support.

WebView integrates with SharePoint by requesting documents that are relevant to the current viewing context. Documents may be associated with one of three Link One contexts:

- The Publisher
- A book or set of books
- A page or set of pages

Publisher level documents are retrieved when viewing any content from the specified publisher. Book level documents are retrieved when viewing one of the specified books. Finally, page documents are retrieved when viewing any of the specified pages. Page level documents may also specify the set of books in which case both page and book code must be matched, but this is optional.

### 7.21.1 Requirements

This section outlines how to set up SharePoint integration for WebView. This integration requires:

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- WebView 3.7 or above
- SharePoint 2010

**NOTE :** This section provides some basic instructions on how to configure SharePoint 2010. These instructions are provided for guidance only. LinkOne support takes no responsibility for resolving SharePoint configuration issues.

**ALSO NOTE :** Some paths may differ from those specified due to different system configurations. For example, "Program Files" may need to be "Program Files (x86)".

## 7.21.2 Set Up Process

1. Install WebView 3.7 or higher.
2. Configure a SharePoint list.
3. Configure WebView for SharePoint support.
4. Add and maintain SharePoint documents.

### 7.21.2.1 Install and Verify WebView

Follow the standard WebView installation process. In order to integrate with SharePoint, you must use Windows Authentication. You can specify this setting in the web.config file. For example:

```
<authentication mode="Windows" />
```

You may also need to enable impersonation. This allows ASP.NET to execute using the identity of the client on whose behalf they are operating. You usually impersonate for resource access control. You can specify the settings in the web.config file. For example:

```
<identity impersonate="true" userName="accountname" password="password" />
```

Please see the following Microsoft KB article for further details:

<http://support.microsoft.com/kb/306158>

**Note:** Verify that the system is fully operational before proceeding with any of the following steps.

### 7.21.2.2 Configure a SharePoint List

WebView retrieves documents for the current context by querying a SharePoint list. This list must have some additional custom columns added in order to identify the context to which a document belongs.

1. Log in as an administrator to the SharePoint site used to store WebView data.
2. Select the SharePoint list of interest.
3. Add the following columns to the SharePoint list. Each column must support text entry. All of these are required.
  - Publisher Code
  - Book Code
  - Page Reference
  - Language
  - Model
4. Ensure that the "Publisher Code" requires a value to be entered.

**Note:** These are the default column names used by WebView.

5. Record the GUID name of the SharePoint list. Instructions for finding the GUID of a SharePoint list are available on the internet. The simple way is to do the following:
  - a. Open Internet Explorer browser and navigate to your SharePoint site.
  - b. Make sure you are on the Shared Documents page.

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- c. Right click on the page, and select "View Source". This opens up the original source of the page in a browser window. It looks something like this:

```

1 <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
2 "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
3 <html xmlns:o="urn:schemas-microsoft-com:office:office" lang="en-us" dir="ltr">
4 <head><meta http-equiv="X-UA-Compatible" content="IE=8" /><meta name="GENERATOR" content="Microsoft SharePoint" /><meta nam
5 content="SharePoint.WebPartPage.Document" /><meta http-equiv="Content-Type" content="text/html; charset=utf-8" /><meta htt
6
7     Team Site - Home
8
9 </title><link rel="stylesheet" type="text/css" href="/_layouts/1033/styles/Themable/wiki.css?rev=9pXM9jgtUVYAHk21JOAbIw%3D%
10 <link rel="stylesheet" type="text/css" href="/_layouts/1033/styles/Themable/corev4.css?rev=iIikGkMuXBs8CWzKDAyjsQ%3D%3D"/>
11
12     <script type="text/javascript">
13     var _fv4UI = true;
14     </script>
15     <script type="text/javascript">
16     // <![CDATA[
17     document.write('<script type="text/javascript" src="/_layouts/1033/init.js?rev=BjQJJs0OCQh3Zfydedw2MYw%3D%3D"></' + 'script>
18     document.write('<script type="text/javascript" src="/ScriptResource.axd?
19     d=45_MccopymFEAYxGYMhejqXm7Xn12SMXZf41kYz0DufOptzLFNjtBDN07stt5UIQJDCyPU3L5bU1aD8bjdsmsmJFkJFh9gF2WIqkW6sxOca3-E27BQPkXo_Uz
20     0kvUEAyv4N23IG3Hf6hvdHMTWJePSIN3kY1&amp;t=ffffffff9d85fa6"></' + 'script>');
21     document.write('<script type="text/javascript" src="/_layouts/blank.js?rev=QGOYAJLouiWgFRlhHVMKA%3D%3D"></' + 'script>');
22     document.write('<script type="text/javascript" src="/ScriptResource.axd?d=K981vu9LN1X-7vqGJXgXEzrty5vOhGboNvP2ohJLo_Awykfvv
23     e6vzcXhdVpC7ki4MpGpf9s711EOz712x8oz7YfsTEFCGN_GZvEgAz21MThGSN3WZZfGtvB1SAS4vVEVOp8W8GGOR5_IrS_oNCPQsHnER8Q0&amp;t=fffff
24     </script>
25     </script>
  
```

- d. Search in this window for the text "listName". The search should find an item with a GUID assignment. That is the GUID you want to copy for this value.

```

731
732     ctx.NavigateForFormsPages = false;
733     ctx.listTemplate = "101";
734     ctx.listName = "{0DE1C9FD-F907-4976-A72A-96EF4A6C78A9}";
735     ctx.view = "{63FOA49E-F8FF-4278-9D67-032C1D9E6E0A}";
736     ctx.listUrlDir = "/Shared%20Documents";
737     ctx.HttpPath = "http://n000109/_vti_bin/owssvr.dll?CS=65001";
738     ctx.HttpRoot = "http://n000109";
739     ctx.imagesPath = "/_layouts/images/";
740     ctx.PortalUrl = "";
741     ctx.SendToLocationName = "";
742     ctx.SendToLocationUrl = "";
743
  
```

### 7.21.2.3 Configure WebView

The WebView configuration file and the web.config must be modified to enable SharePoint integration. The default configuration file is Mincom.LinkOne.WebView.config

1. Open the WebView configuration file.
2. Add and configure the following settings:

Mincom.LinkOne.WebView.WebServer.Services.Cms.Enabled

A complete list of configuration values for the Mincom.LinkOne.WebView.Config file is described below:

Configuration Key	Description
Mincom.LinkOne.WebView.WebServer.Services.Cms.Enabled	"True" to enable SharePoint integration, "False" to disable. Default value is "False".

1. Open the web.config file.
2. Add and configure the following AppSetting values:
  - Mincom.LinkOne.Adapter.Cms.Assembly
  - Mincom.LinkOne.SharePoint.BaseUrl
  - Mincom.LinkOne.SharePoint.ListTitle

An example of these config values is shown here:

```
<add key="Mincom.LinkOne.Adapter.Cms.Assembly"
  value="CmsProvider.SharePointProvider,Mincom.LinkOne.Sharepoint"/>
<add key="Mincom.LinkOne.SharePoint.BaseUrl"
  value="http://myserver:8080/" />
<add key="Mincom.LinkOne.SharePoint.ListTitle"
  value="{0DE1C9FD-F907-4976-A72A-96EF4A6C78A9}" />
```

A complete list of web.config settings used for SharePoint integration are described below:

AppSetting Key	Description
Mincom.LinkOne.Adapter.Cms.Assembly	Class Name and Namespace of the custom CMS assembly. The value for SharePoint should be: "CmsProvider-SharePointProvider,Mincom.LinkOne.WebView.SharePoint"
Mincom.LinkOne.SharePoint.BaseUrl	Identifies the URL used to access the SharePoint site. Include a trailing '/' character. For example <b>http://SharePointHost:8080/</b>
Mincom.LinkOne.SharePoint.ListTitle	The GUID of the SharePoint list to access – e.g., {A611A2FE-4FDC-49BD-9E28-973444BCDB80}

#### 7.21.2.4 Adding SharePoint Documents and Associating them to LinkOne

Documents can now be added to SharePoint for display by WebView. Documents must be associated with:

- A single publisher code
- Any number of book codes (or none)
- Any number of page references (or none)

These are specified by entering data into the respective fields in the SharePoint list. A document may only be associated with one publisher code (exact match, although case insensitive). Any number of book codes and page references may be assigned to the document. Multiple codes are separated by the pipe '|' character.

#### 7.21.3 Sharepoint Alerts (Notifications)

The LinkOne Book Change Notification service does not notify when documents stored in SharePoint are modified. To be notified or alerted when changes are made to SharePoint documents, it is recommended to configure SharePoint Email Alerts.

The following references are included to assist with this process:

- SharePoint Email Alerts Configuration  
<http://technet.microsoft.com/en-us/library/cc263462.aspx>

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- Configuring alerts on documents (files)

**SharePoint 2010 Help topic "Create an alert for a folder, file or list item"**

## 7.22 How to Configure Advanced Search Facility

### 7.22.1 Administration

#### 7.22.1.1 Setup

Prior to users accessing the Advanced Search Facility, a number of tasks must be completed by the LinkOne Web-View System Administrator.

##### 7.22.1.1.1 Prerequisite Software

Java JDK should be installed on your Web server. We recommend that you download and install the most recent version of Java that is available and compatible with the version of SolR. At the time of writing, the most recent version is 1.8.0.2.1. Please ensure that the system Environment Variable JAVA\_HOME is set appropriately.

The operating system user that the Advanced Search services will run as, default Network Service, will require the ability to create temporary files in the %TEMP% directory of the user, for Network Service, the directory is C:\Windows\ServiceProfiles\NetworkService\AppData\Local\Temp.

##### 7.22.1.1.2 Settings

The `~/web.config` file must be edited to enable a connection to the SOLR Search Index DB. This connection is used by the LinkOneBookIndexingService and LinkOne WebView.

Modify the following line from the Connection Strings section (under the comment 'SQL Server connection strings') and change `connectionString=.` to point to the appropriate SOLR instance. For example:

```
<add name="LinkOneSearchIndexServer" connectionString="http://localhost:8983/solr/webview" />
```

##### 7.22.1.1.3 Modify the LinkOne.LinkOne.WebView.config Settings

By default, the Advanced Search Facility is not enabled. To enable the Advanced Search Facility, edit the `~/bin/Mincom.LinkOne.WebView.config` file by adding the `LibrarySearchEnabled` key and setting its value to true and enabled to true as below:

```
<add key="Mincom.LinkOne.WebView.WebServer.LibrarySearchEnabled" value="true" enabled="true"/>
```

The Advanced Search Facility can be disabled by either removing the key or by setting the value of `LibrarySearchEnabled` to false or by setting `enabled` to false.

By default, the maximum rows returned by a search is limited to 100. This can be changed by adding the `LibrarySearchMaxRows` key to the `~/Mincom.LinkOne.WebView.config` file and setting its value to true and enabled to true as below:

```
<add key="Mincom.LinkOne.WebView.WebServer.LibrarySearchMaxRows" value="100" enabled="true" />
```

##### 7.22.1.1.4 Modify the ~\bin\LinkOneBookIndexingService.exe.config Settings

The LinkOneBookIndexingService configuration settings are as follows:

- The BookIndexingService must point to the LinkOne installation directory by modifying the LinkOneDir key. For example:

```
<add key="Mincom.LinkOne.WebView.LinkOneDir" value="c:\inetpub\wwwroot\LinkOne" />
```

- The EventDelayMinutes key determines how long (in minutes) it waits before checking for book changes:

```
<add key="Mincom.LinkOne.WebView.EventDelayMinutes" value="5" />
```

- The SolrConnectionTimeout key determines how long (in milliseconds) it waits before timing out on an operation:

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```
<add key="Mincom.LinkOne.WebView.SolrConnectionTimeout" value="360000" />
```

- The `VerboseLoggingEnabled` key determines if the Service should generate output to the log file:

```
<add key="Mincom.LinkOne.WebView.VerboseLoggingEnabled" value="false" />
```

- The `LogDirectory` key determines what folder the log file will be located:

```
<add key="Mincom.LinkOne.WebView.LogDirectory" value="Data\Log" />
```

- The `IndexEmbeddedDocuments` key is used to enable indexing of embedded documents:

```
<add key="Mincom.LinkOne.WebView.IndexEmbeddedDocuments" value="false" />
```

- The `NumBooksPerSolrCommitDuringInitialSync` key is used to determine how many books the Service will process before committing the results into SOLR:

```
<add key="Mincom.LinkOne.WebView.NumBooksPerSolrCommitDuringInitialSync" value="10" />
```

- The `FileSystemWatcherInternalBufferSize` key is used to determine the `FileSystemWatcher` internal buffer size. The default is 8192 bytes (8 KB). The valid value between 4096 (4KB) and 65536 (64KB). For best performance, use a multiple of 4 KB on Intel-based computers:

```
<add key="Mincom.LinkOne.WebView.FileSystemWatcherInternalBufferSize" value="8192" />
```

- The `Mincom.LinkOne.WebView.HandleChangeOnThreadPool` key is rectify the reported error message when are large number of files are changed in the Library folder - set the value to true.:

```
<add key="Mincom.LinkOne.WebView.Mincom.LinkOne.WebView.HandleChangeOnThreadPool" value="false" />
```

### 7.22.1.2 Installation and configuration of the SOLR Instance(s) Overview

The Advanced Search Facility uses a SOLR server instance to hold indexes to the documents in the LinkOne libraries. This server does not need to be the same exact server as your LinkOne instance. This LinkOne WebView release has been configured and tested using Basic Configuration Setup

The basic configuration setup is no longer available

**NOTE:** Solr 5.x and newer versions present Solr as a stand-alone server. It's no longer distributed as a WAR (web archive) file that should be deployed in a servlet container e.g. Jetty.

### 7.22.1.3 SOLR Installation and Configuration

To manually perform the configuration steps individually, perform the following:

1. Create a new directory under **root directory of the LinkOne WebView installation** (eg `C:\inetpub\wwwroot\LinkOne`) named **"SOLR"**. Although this directory can be created anywhere, we suggest that you create it in this location.
2. Download a copy of the SOLR server package v8.11.2 (`solr-8.11.2.zip` file) from: <https://solr.apache.org/downloads.html>.
3. Decompress the SOLR server into the SOLR directory (this will result in a new folder, **solr-8.11.2** being created). `~\SOLR\solr-8.11.2` will contain directories such as `bin`, `contrib`, `dist`, `docs`, `examples`, `licences` and `server`
4. Copy the folder **SOLR\solr-8.11.2\server\solr\configsets\\_default** to **SOLR\solr-8.11.2\server\solr\configsets\webview\_configs**.
5. Copy the file **schema\_v1.6\_solr8.11.2.xml** into the folder **SOLR\solr-8.11.2\server\solr\configsets\webview\_configs\conf**,
6. Delete the existing **managed-schema** file and rename the **schema\_v1.6\_solr8.11.2.xml** file to **schema.xml**. You can locate the most recent **schema\_v1.6\_solr8.11.2.xml** file in the **root** folder of your LinkOne WebView installation.
7. Open the file **SOLR\solr-8.11.2\server\solr\configsets\webview\_configs\conf\solrconfig.xml** in a text editor. Find the following element:
 

```
<maxBooleanClauses>${solr.max.booleanClauses: 1024}</maxBooleanClauses>
```

 and modify the value to this:
 

```
<maxBooleanClauses>${solr.max.booleanClauses:1048576}</maxBooleanClauses>
```
8. Open the file **SOLR\solr-8.11.2\server\solr\solr.xml** in a text editor. Find the following element:
 

```
<int name="maxBooleanClauses">${solr.max.booleanClauses: 1024}</int>
```

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and modify the value to this:

```
<int name="maxBooleanClauses">${solr.max.booleanClauses:1048576}</int>
```

9. Open a DOS Command prompt with Administrative privileges and navigate to the **SOLR\solr-8.11.2\bin** directory.
10. From the command window, execute the command "**solr.cmd start -m 1g**". This should launch the SOLR server.
11. Test the SOLR instance by opening a web browser to the address <http://servername:8983/solr/>.
12. From the command window, execute the command "**solr.cmd create -c webview -d webview\_configs -p 8983**". This should create a SOLR Core named webview using the webview\_configs configuration.
13. Stop the SOLR server by executing the command "**solr.cmd stop -all**" at the command prompt window.
14. Download a copy of Nssm from here: <https://nssm.cc/download>.
15. Decompress the Nssm into the SOLR directory (this will result in a new folder, **nssm-2.24** being created).
16. Open a DOS Command prompt and navigate to the **SOLR\nssm-2.24\win64** directory.
17. From the command window, execute the command "**nssm install Solr8**". This should launch the NSSM service editor.
18. Fill out the path to the solr.cmd script i.e. **SOLR\solr-8.11.2\bin\solr.cmd**, and the startup directory should be filled in automatically.
19. Fill out the Arguments field with '**start -m 1g -f -p 8983**', and click on Install service. Optionally you can provide the Display name and Description in the Details tab before installing the service.
20. You may now start/stop the **Solr8** Service from the Services Console.

## Replication Configuration Setup

To manually configure the Replication installation, perform the following steps:

1. Complete all steps above under the prior section "**To manually configure the Basic installation, perform the following steps**".

2. Add the following request handler to the **SOLR\solr-8.11.2\server\solr\webview\conf\solrconfig.xml** file:

```
<!-- Replication Handler -->
<requestHandler name="/replication" class="solr.ReplicationHandler" >
  <lst name="leader">
    <str name="replicateAfter">startup</str>
    <str name="replicateAfter">commit</str>
    <str name="backupAfter">optimize</str>
    <str name="confFiles">solrconfig_follower.xml:solrconfig.xml,schema.xml,stopwords.txt</str>
  </lst>
  <int name="maxNumberOfBackups">2</int>
</requestHandler>
```

Restart the **Solr8** Service from the Services Console.

3. Decompress another SOLR server into **SOLR\solr-8.11.2-follower** directory.
4. Copy the folder **SOLR\solr-8.11.2\server\solr\configsets\ webview\_configs** to **SOLR\solr-8.11.2-follower\server\solr\configsets\webview\_configs**.
5. Open a DOS Command prompt and navigate to the **SOLR\solr-8.11.2-follower\bin** directory.
6. From the command window, execute the command "**solr.cmd start -m 1g -p 8984**". This should launch the SOLR server at port 8984.
7. Test the SOLR instance by opening a web browser to the address <http://servername:8984/solr/>.
8. From the command window, execute the command "**solr.cmd create -c webview\_follower -d webview\_configs -p 8984**". This should create a SOLR Core named webview using the webview\_configs configuration.
9. Add the following request handler to the **SOLR\solr-8.11.2-follower\server\solr\webview\_follower\conf\solrconfig.xml** file:

```
<requestHandler name="/replication" class="solr.ReplicationHandler">
  <lst name="follower">
    <str name="leaderUrl">http://localhost:8983/solr/webview/replication</str>
    <str name="pollInterval">00:00:30</str>
  </lst>
</requestHandler>
```

21. Stop the SOLR follower server by executing the command "**solr.cmd stop -all**" at the command prompt window.
22. Open a DOS Command prompt and navigate to the **SOLR\nssm-2.24\win64** directory.

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23. From the command window, execute the command "**nssm install Solr8-follower**". This should launch the NSSM service editor.
24. Fill out the path to the solr.cmd script i.e. **SOLR\solr-8.11.2-follower\bin\solr.cmd**, and the startup directory should be filled in automatically.
25. Fill out the Arguments field with '**start -m 1g -f -p 8984**', and click on Install service. Optionally you can provide the Display name and Description in the Details tab before installing the service.
26. You may now start/stop the **Solr8-follower** Service from the Services Console.

#### 7.22.1.3.1 Removal\Uninstallation of the SOLR Instance

The WebView installer package will not uninstall or remove any of the files or services configured in the manual steps documented above. In order to remove these, perform the following steps prior to running the Uninstall of WebView:

1. Open a DOS Command prompt and navigate to the **SOLR\nssm-2.24\win64** directory.
2. From the command window, execute the command "**nssm delete Solr8**". You should see a success message in a dialog.
3. Restart your computer if necessary.
4. Do the same for **Solr8-follower** service if you have completed the Replication setup

## 7.22.2 Operation

### 7.22.2.1 Indexing the LinkOne Books

Before the Advanced Search Facility component of the WebView application can be used, the LinkOne libraries must be indexed into the SOLR repository. This is done by the System Administrator installing and then starting the Service. Note that the **LinkOneBookIndexingService** will index all of the LinkOne libraries specified in the **Services.BookService.Libraries** key found in the **~/Mincom.LinkOne.WebView.config** file.

To install the service, you may run the batch file **~/bin/InstallLinkOneBookIndexingService.bat** with Administrative privileges or open a DOS Command Prompt with Administrative privileges and change directory to the **~/bin** folder. Enter in the following DOS command (note that the installutil executable must be in your Windows path for this to work):

```
installutil LinkOneBookIndexingService.exe
```

To Start the service, open a DOS Command prompt and change directory to the **~/bin** folder. Enter in the following DOS command:

```
net start LinkOneBookIndexingService
```

To Stop the service, open a DOS Command prompt and change directory to the **~/bin** folder. Enter in the following DOS command:

```
net stop LinkOneBookIndexingService
```

To remove the service, you may run the batch file **~/bin/UninstallLinkOneBookIndexingService.bat** or open a DOS Command prompt and change directory to the **~/bin** folder. Enter in the following DOS command (note that the installutil executable must be in your Windows path for this to work):

```
installutil /u LinkOneBookIndexingService.exe
```

### 7.22.2.2 Removal\Uninstallation of the SOLR Instance

The WebView installer package will not uninstall or remove any of the files or services configured in the manual steps documented above. In order to remove these, perform the following steps prior to running the Uninstall of WebView:

1. Stop the **LinkOneBookIndexing Service** from the Services console.
2. Remove the **LinkOneBookIndexingService** as documented above.
3. ~~Stop the **Jetty Service** from the Services console.~~
4. ~~Open a command prompt and change directory to the **SOLR\WebView\bin** folder. Type in the following command to remove the **Jetty Service**:~~

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```
----- Jetty-Service.exe -r
```

You should see a success message like the following:

```
----- wrapper | Jetty6-Service removed.
```

- As a final step, you should delete the SOLR directory structure from the hard drive.

### 7.22.2.3 Using the Advanced Search Status Page

The administrator may use the LinkOne Book Indexing Service page to review the overall Book Indexing status information. This page displays the status of the Windows Service (i.e. running or stopped). It also reports how many books still need to be indexed as well as how many books have completed the indexing process. If there are any books that generated an error during indexing, then this page displays a table that includes: The Book, Library, Exception Message, and Status of all failed books. The list may be sorted and filtered. When there are failures listed, the administrator may issue a "Retry" request or a "Retry Ignoring Errors" request.

The administrator is also given the ability to Reset the LinkOne Book Indexing Service Windows Service:

**NOTE:** Resetting the LinkOneBookIndexing Service will permanently destroy all of the current Book Index data that has previously been created by the Service. Performing this operation is not reversible and should only be done when required.

To Reset the indexer, you may perform the following steps:

- Login to the WebView application using the administrator account and navigate to **Configuration -> Advanced Search Status**.
- Verify that the Indexing Service status is **"Running"**. There will be a green **"Check Mark"** icon located next to the Indexing Service status label. If instead, there is a yellow **"Caution"** icon displayed next to the label, then you will need to **manually restart** the LinkOneBookIndexingService as outlined above.
- Click on the **"Reset Book Indexing"** link, and when prompted to continue select the **"OK"** button to allow the Book Indexing Reset to proceed.
- A few minutes may elapse before any indication of the reset action is noticed.

## 7.23 Overriding Publisher defined Parts List Formatting

With the new user interface introduced with WebView 3.20, a number of changes to the user interface "look and feel" were incorporated. These changes may render the parts list formatting of some book pages to appear sub-optimal. When this occurs, LinkOne WebView provides a mechanism to be used by the publisher/administrator to easily override the original/default formatting of the books, on a per publisher library/folder basis. This mechanism can only be applied when the book is fully expanded state, not stored as a single file book, also known as sfb file.

In order to do so, the publisher/administrator must include a CSS file, that will be treated as an addendum to the default CSS. Two simple examples are included in WebView samples folder (~\Samples\Overriding Formats) to be readily applied to any publishers, but a deeper knowledge in CSS will be required to do more complex modifications.

The sample CSS files are as follow:

- stylesheet.01.css contains an example to vertically aligned the parts list items to the middle of the line.
- stylesheet.02.css contains an example to vertically aligned the parts list items to the middle of the line, changing parts list header background color to white and bottom border of the parts list header to grey.

Here are the steps on how to apply the CSS

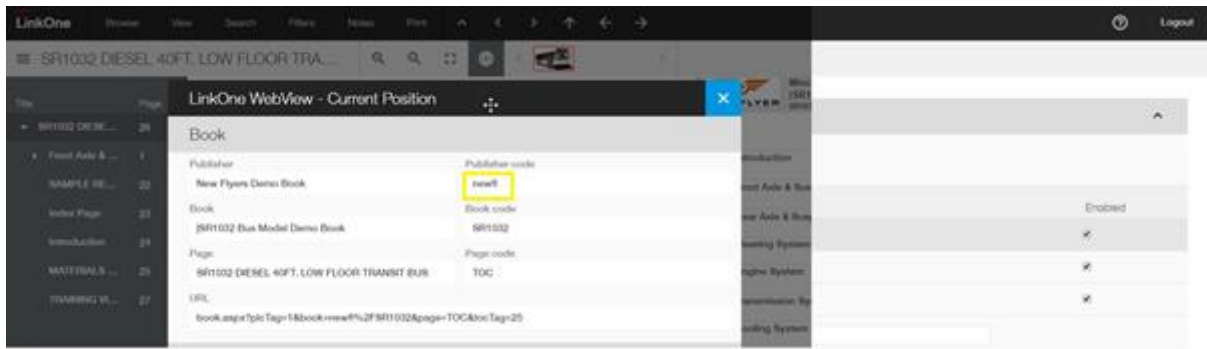
- Determine the location of the library on the filesystem. To do this, you can go to Configuration > Libraries to check all the current registered libraries.

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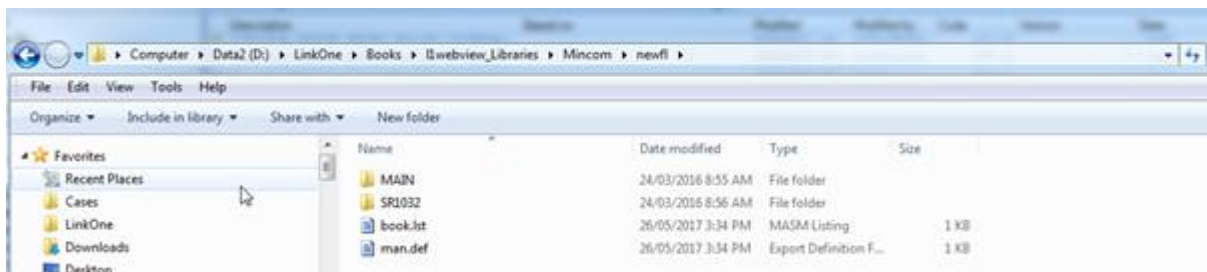
2. The following example will use the library highlighted below:



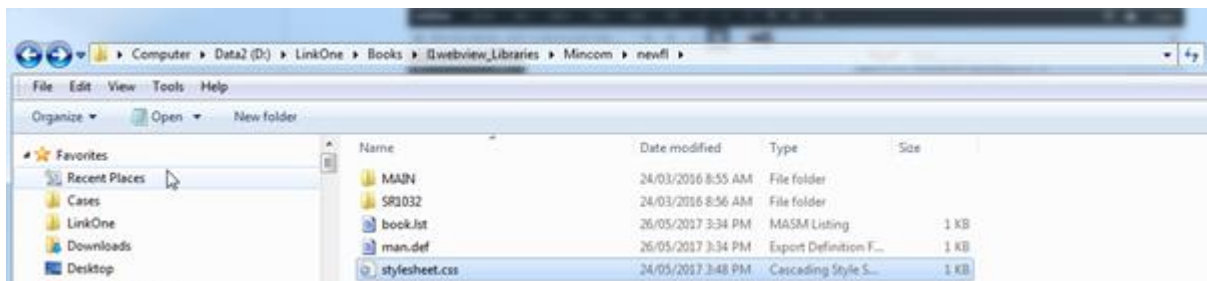
3. Open the filesystem location of the library.  
 4. To check if it's the correct publisher, you can match the publisher code against your target book, by opening the book in the browser, and open the View->Current Position option:



5. In this example, the publisher code is newfl.  
 6. Open the publisher (newfl) folder:

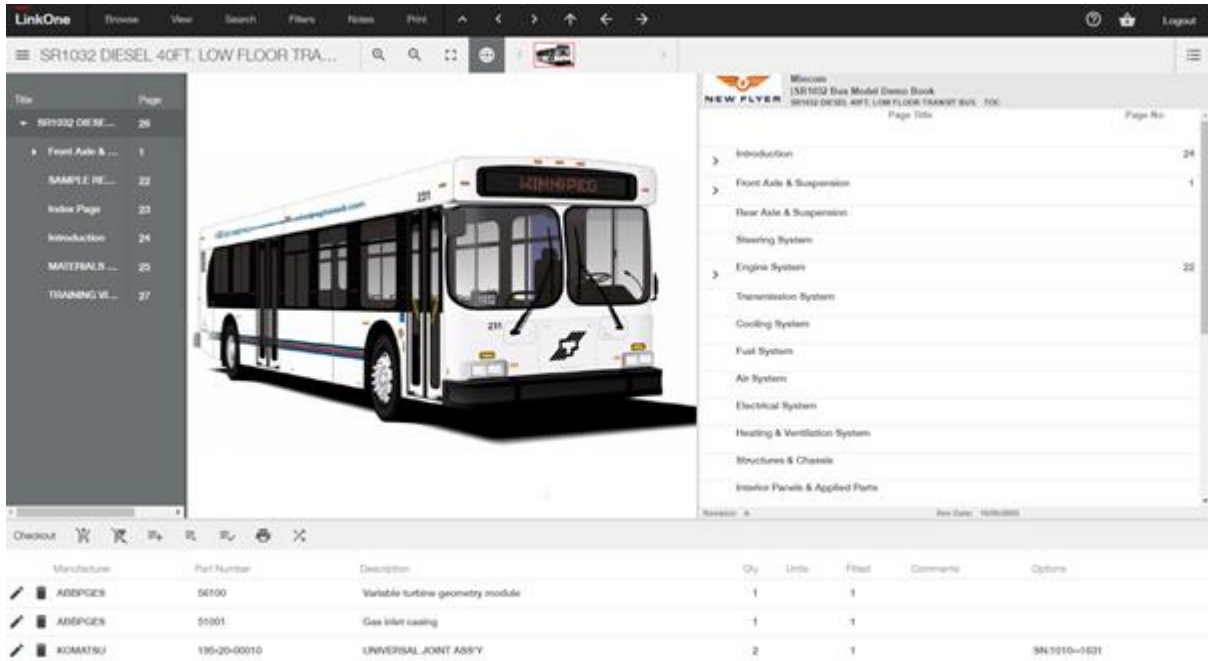


7. Choose one of the CSS files to be applied. This example uses stylesheet.02.css. Rename it to stylesheet.css and copy it to the publisher folder.

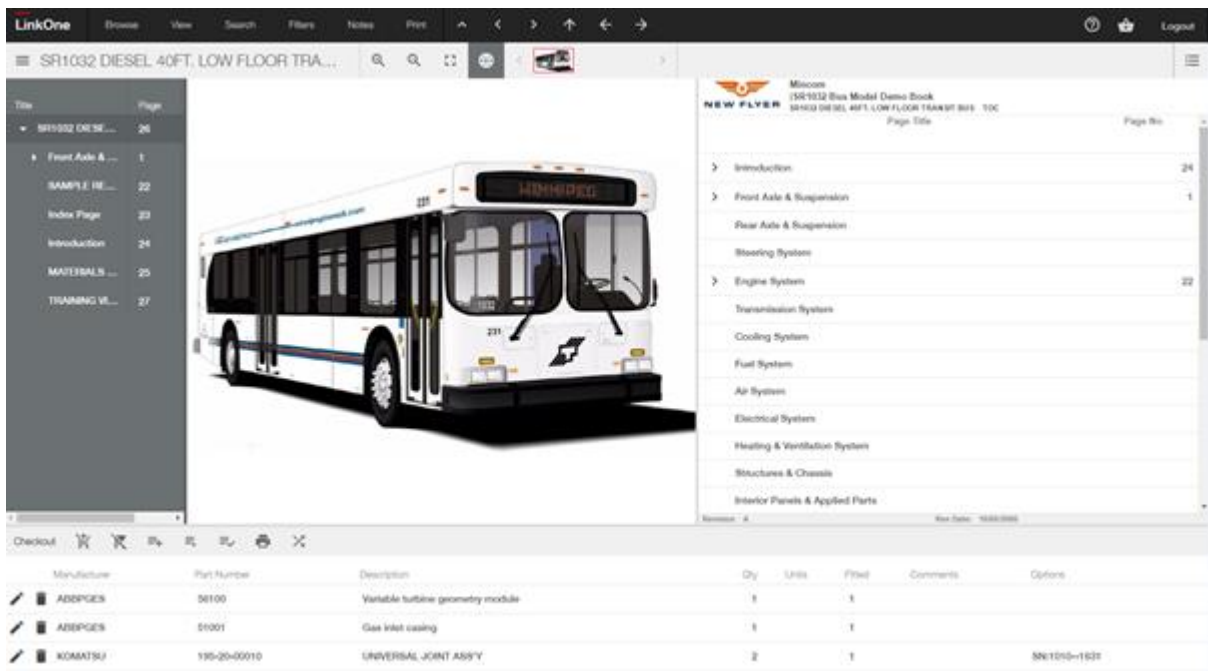


8. For the change to take effect, the IIS application pool will need to be restarted.  
 9. Now, reload the page in the browser and review the change

10. Original (default style)



11. Custom



Note the background color of the parts list header and the vertical alignment of the parts list item have changed.

The CSS is applied per publisher’s folder basis, not to all books belonging to that publisher. This means that if the publisher is introduced in two different libraries, each of the publisher’s folders in those libraries need to have their own copy of the custom CSS.

If the publisher has the same books with the same name in different folder, the order of the books being listed in the libraries will be in effect.

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## 7.24 Azure Active Directory

This information is written assuming that the reader has a good understanding of Azure Active Directory and that the LinkOne WebView installation is using Azure AD as an authentication point with all of the other options being the same as an “Out of the Box”/default implementation. Changing any option such as the Database connectivity, may require further configuration changes.

Further information can be found at <https://docs.microsoft.com/en-us/azure/active-directory/develop/quickstart-v1-aspnet-webapp>, in particular steps 9 and 10.

The following steps must be performed to enable Azure AD Authentication

1. Select a userid that will have the application administration permission once Azure AD Authentication is enabled.
2. Run the LinkOne WebView Installer and installing it into the desired location. In the example, it will be `servername/LinkOne`
3. Connect the URL using the default admin userid
4. Add the userid from step 1 above and add them to the Administrators role
5. Enable https for LinkOne WebView and ensure it is working, including pictures on the pages using the desired URL – eg `https://servername/LinkOne`
6. Enable Azure AD Authentication by editing the `web.config` for the site – this will likely require Administrator or equivalent access.

The following is an example of the configuration in the `web.config` file:-

```
<!-- Azure AD SSO -->
<!-- ThirdPartyAuthentication True or False-->
<add key="tpa:ThirdPartyAuthentication" value="True"/>
<add key="owin:AppStartup" value="Mincom.LinkOne.WebView.Startup"/>
<add key="webpages:Version" value="3.0.0.0"/>
<add key="webpages:Enabled" value="false"/>
<add key="ClientValidationEnabled" value="true"/>
<add key="UnobtrusiveJavaScriptEnabled" value="true"/>
<!-- Client ID bdabedc9-827d-4715-9769-xxxxxxxxxxxx-->
<add key="tpa:ClientId" value="a03970ac-0a91-4b72-83d9-142ed8636f4a"/>
<!-- Tenant xxxx.onmicrosoft.com-->
<add key="tpa:Tenant" value="xxxx.onmicrosoft.com"/>
<!-- TenantID ab55ef67-7d56-4878-8bce-xxxxxxxxxxxx-->
<add key="tpa:TenantID" value="9c6f49e5-ff48-4238-b17e-4fda141336a4"/>
<add key="tpa:AADInstance" value="https://login.microsoftonline.com/{0}"/>
<!-- PostLogoutRedirectUri https://localhost/Linkone3-->
<add key="tpa:PostLogoutRedirectUri" value="https://servername/LinkOne"/>
<!-- RedirectUri https://localhost/Linkone/ExternalLogin/RegisterExternalLogin.aspx-->
```

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```
<add key="tpa:RedirectUri" value="https://localhost/LinkOne323bbeta/ExternalLogin/RegisterExternal-Login.aspx"/>
```

```
<!-- The group name where user should be added-->
```

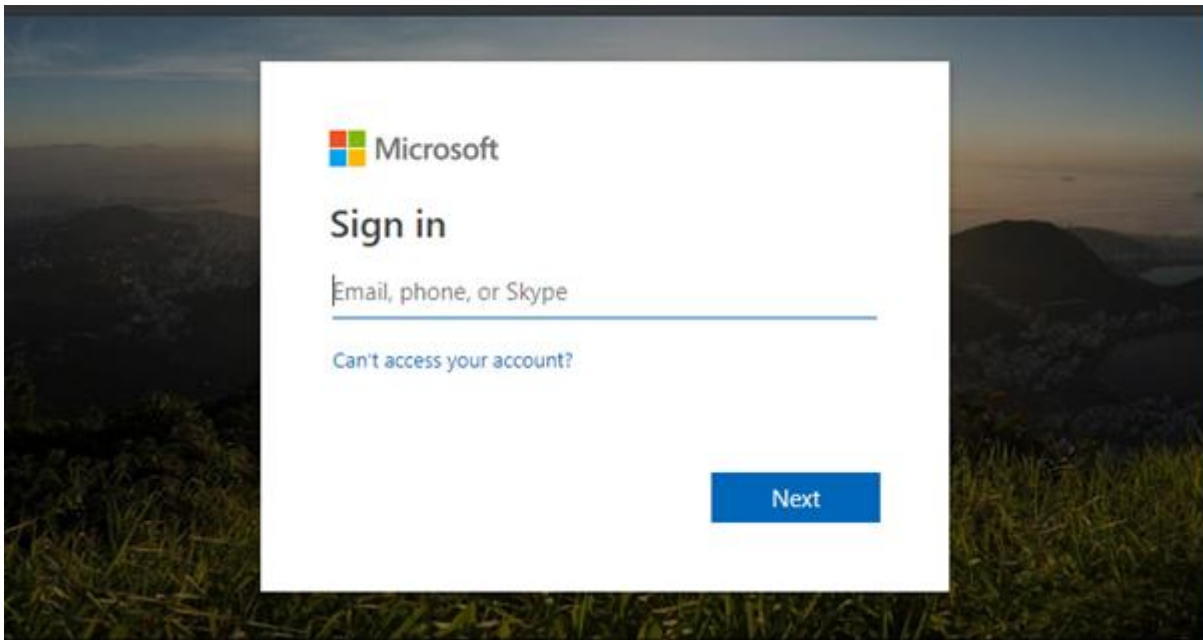
```
<add key="tpa:DefaultUserRoleName" value="Users"/>
```

```
<!-- Azure AD SSO End -->
```

Once AD Authentication is enabled, if a user has access to the application in Azure AD and they have not been configured in LinkOne WebView, the first time they connect, they be added to the Default User Role defined in the web.config – by default is the Users role.

Once enabled, using the Userid selected in Step 1, check connectivity. When Azure Authentication is enabled, the Login screen is replaced with an External Login screen. This could be replaced with a customisation. The following is an example:-

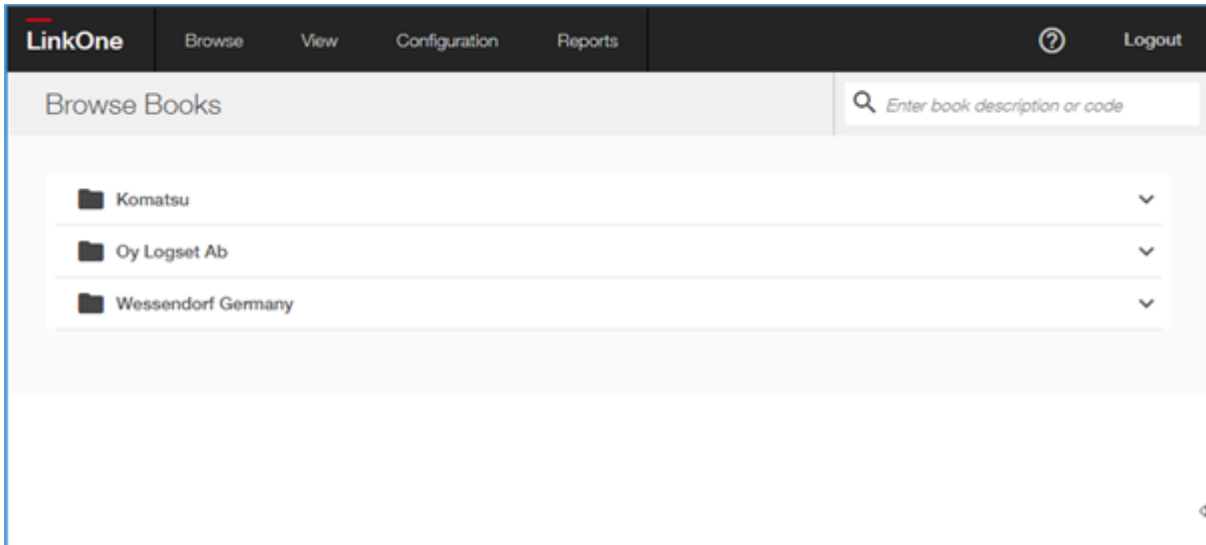
If you have not been authenticated to Azure previously (or lately within the allocated timeframe), when you connect to the URL <https://servername/LinkOne>, you will be redirected to the Microsoft login page



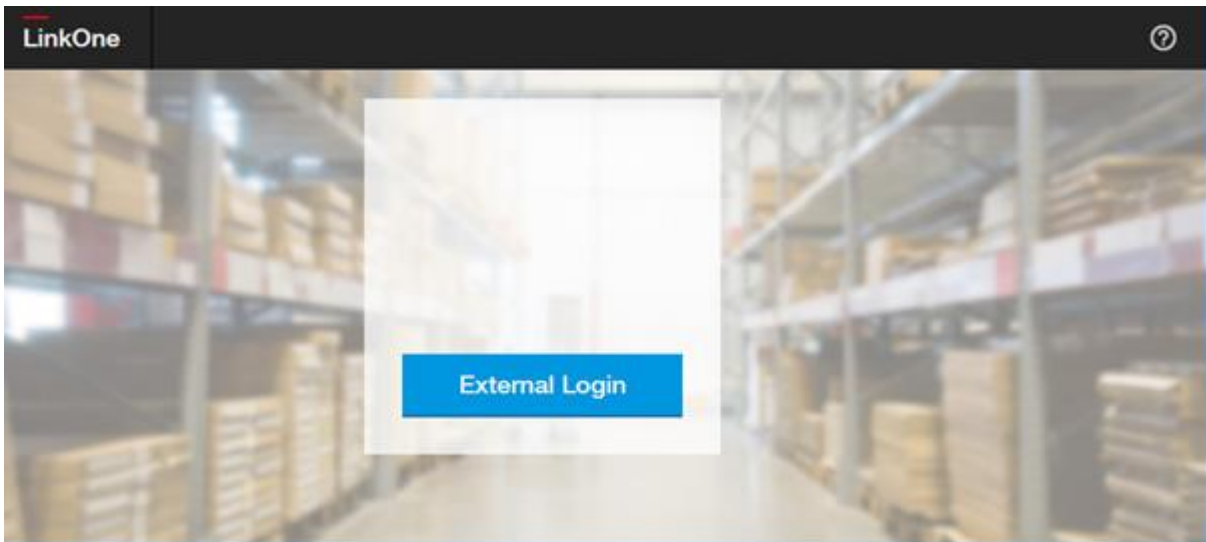
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Once logged in, you will then be presented with the Browse Books page



Using the above configuration, if you logout of the application, you will be redirected to the External Login page.

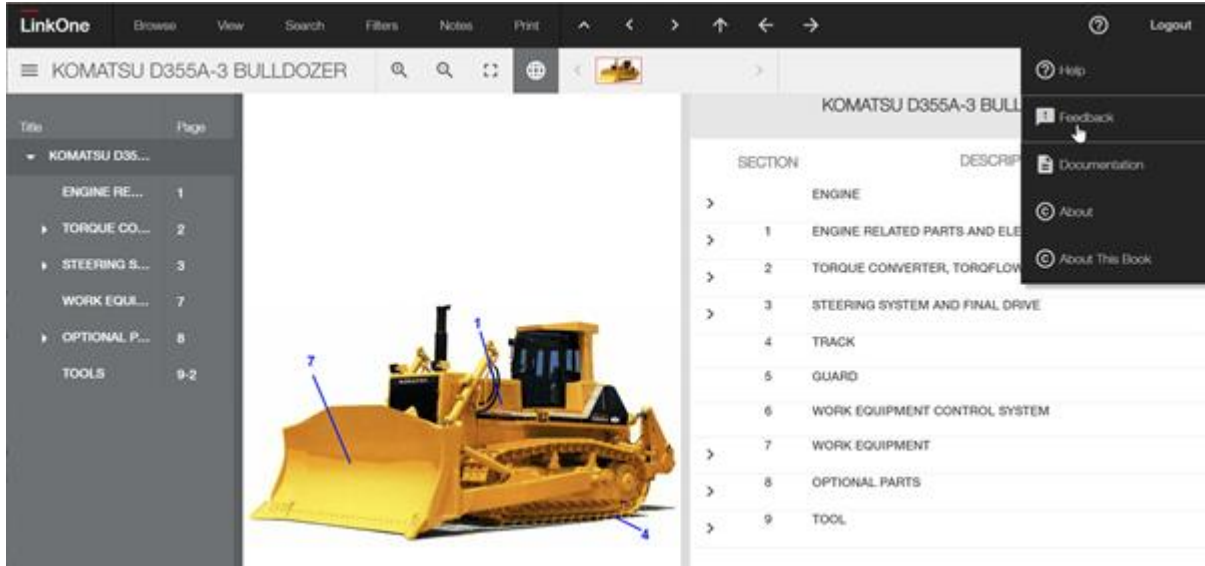


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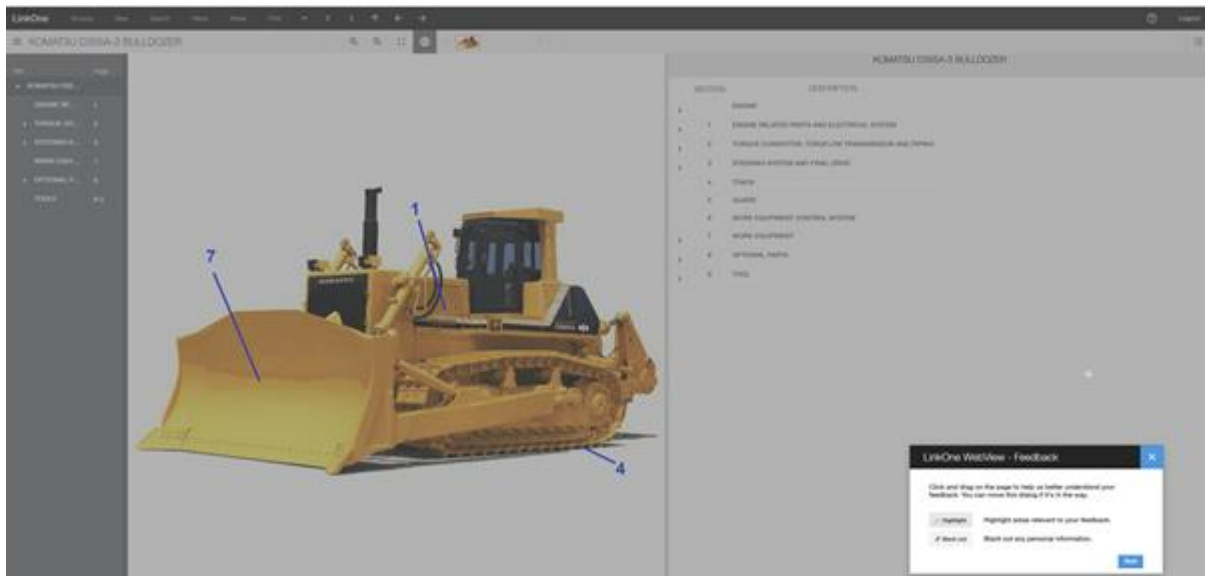
## 7.25 User Feedback Functionality

The user feedback functionality has been designed to allow end users to provide feedback to the site administrator. The functionality is a 2 step process to capture current screen display and then collect information including the ability to annotate the screenshot. It is an optional feature and must be enabled and configured by the administrator.

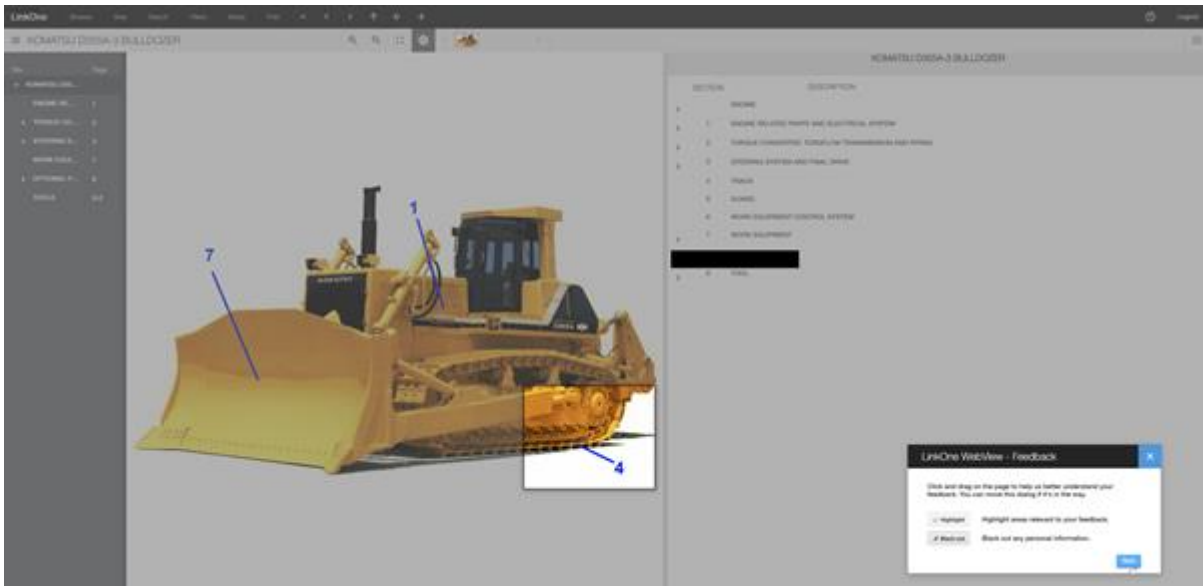
The feedback function is invoked by selecting Feedback option from the Help menu



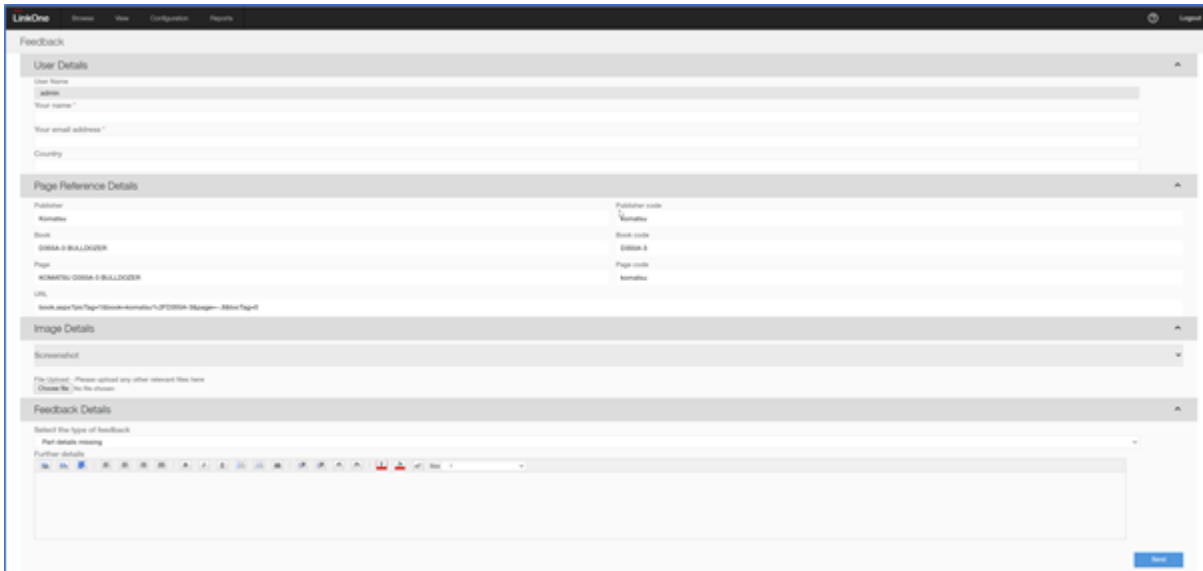
When Feedback has been invoked, a shadow mask is placed over the screen, a popup appears allowing the user to highlight or blackout any section of the screen before it is captured.



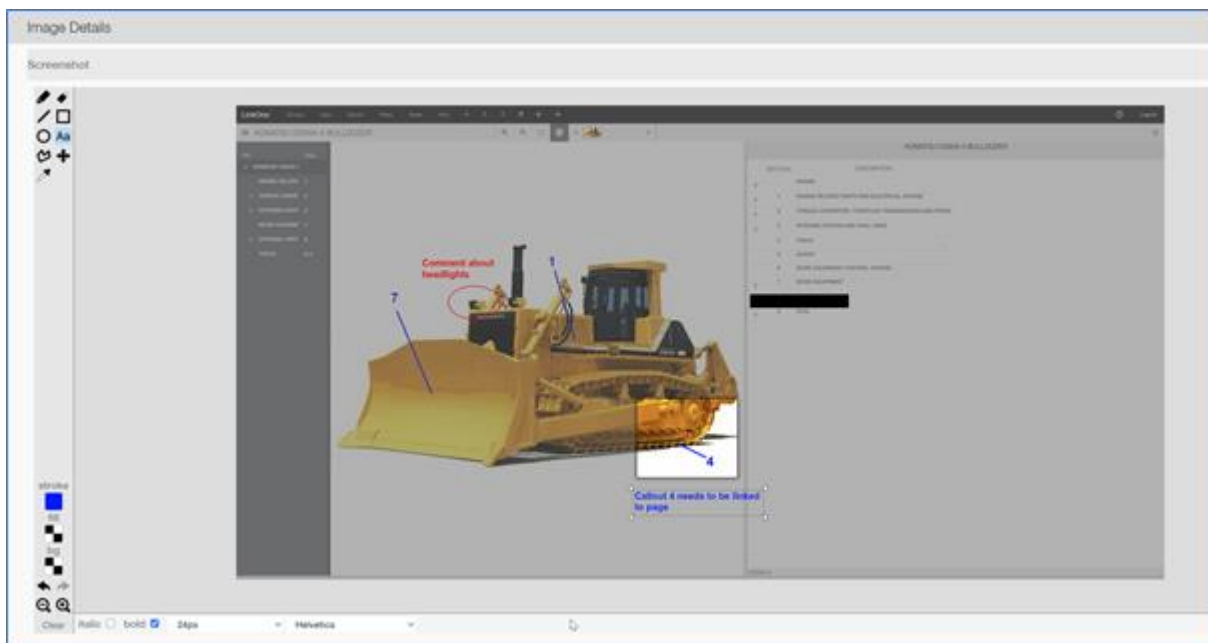
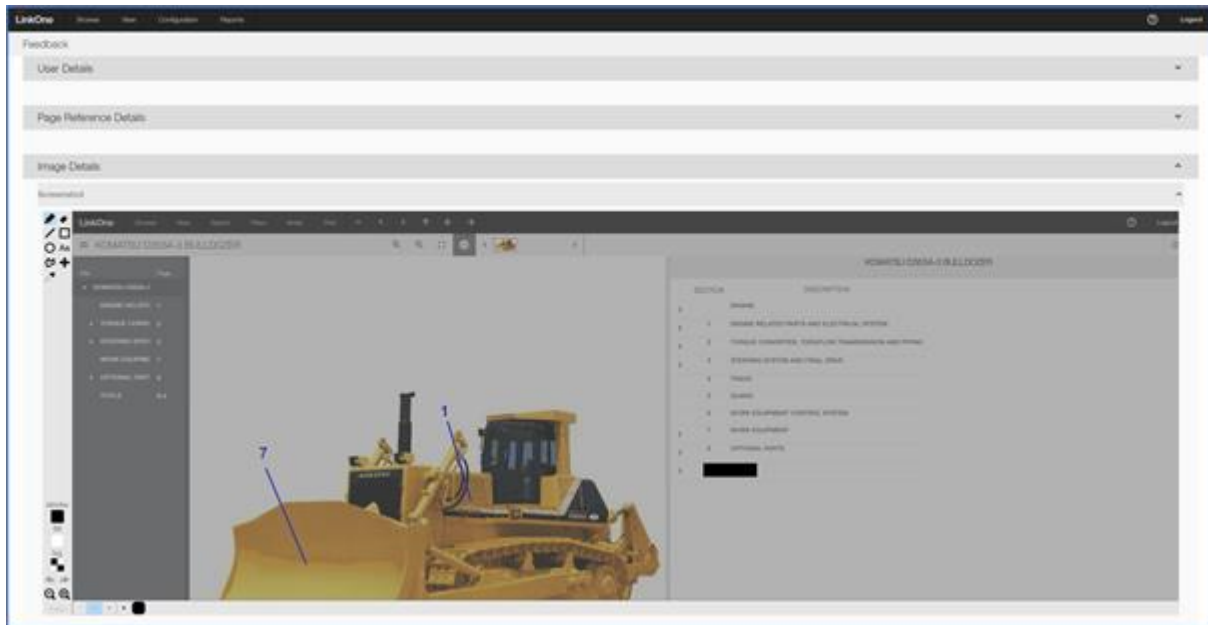
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After pressing next button, a new form is opened in a new tab. The form is divided into 4 sections:- User, Page Reference, Image and Feedback Details. The screenshot captured is in the Image Details section in the minimized state.



When the screenshot is first displayed, it may need to be zoomed in or out to be fully visible, depending on the web browser window size. The image controls can be used to annotate the screenshot.



Additional files can also be attached in the Image Details section.

The Feedback Details section contains a drop down menu of options to provide be able to classify the feedback. A free text Further Details section allows the user to provide additional details. A set of controls are provided to allow formatting of the text.

Once the details are collected via the feedback process, they are sent to the email address configured by the administrator.

### 7.25.1.1 User Feedback Configuration

To enable the Feedback Feature, the following line in the Mincom.LinkOne.WebView.config file must have value="True" and enabled="True":-

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```
<add key="Mincom.LinkOne.WebView.WebServer.Services.BookService.FeedbackEnabled" value="True"
enabled="true" />
```

Configuration of the Feedback feature is done via the Configuration-> Feedback menu option. The following values can be configured (those marked with \* are mandatory):-

- SMTP Server – this is the name of the SMTP email host that will accept email that will be forwarded onto the configured address.
- SMTP Port – if omitted, the default value of 25 is used.
- SMTP UserID – this is the userid/account used, if required, to establish a connection with the SMTP server
- SMTP Password – this is the password associated with the SMTP UserID.
- Feedback Email From – As users may not have an email address associated with the user id, this is the address that the email will be sent from.
- Feedback Email To – this is the email address that the Feedback details will be sent to.
- List of Feedback Types – this is used to populate the Feedback Details type dropdown. Each option should be entered on a separate line. The default values are:-
  - Parts details missing
  - Image details missing
  - General Feedback

## 8 WebView Offline Client

### 8.1 Overview

The purpose of the LinkOne WebView Offline client is to provide the essential functionality to allow the user to utilise LinkOne content while network connectivity is not available. It has not been designed as a full replacement of the Online/connected viewer.

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When content is downloaded from the server for offline use, each image is only downloaded once and then zoomed using the local browser capabilities, primarily to reduce the storage requirements. This implementation does currently result in reduced image functionality and quality.

The following functionality is NOT currently supported with the WebView Offline client:-

- Tablet device such as iPad and Android tablets are currently not fully supported. Tablet specific functionality such finger gestures to zoom images will not work.
- Downloading larger LinkOne Books may encounter issues on some devices
- Customisation of Offline Selection List
- Books containing layouts/formats
- Languages other than English
- LinkOne Notes functionality
- Filtering of LinkOne content
- Searching
- Printing

## 8.2 Installation

The installer creates an additional top level directory under the webroot with 'Offline' suffix appended to the original name. For example If the install directory is called LinkOne, the offline client components will be installed into a directory called LinkOneOffline.

The Offline directory can be removed without affecting the main online components.

## 8.3 Enabling Offline client

**NOTE:** Prior to enabling the Offline Functionality, ensure that that the online system is licenced and all content (both pictures and text) is viewable.

### 8.3.1 Enable https

The Offline client has been implementing using Progressive Web Application, Service Worker technology. . A pre-requisite of using this technology in production is the implementation of https and full (not self signed) SSL certificates. For testing, some browsers support disabling these requirements such as Chrome's #unsafely-treat-insecure-origin-as-secure flag and Firefox's devtools.serviceWorkers.testing.enabled setting.

To enable https, please refer to the relevant walkthrough earlier in this document.

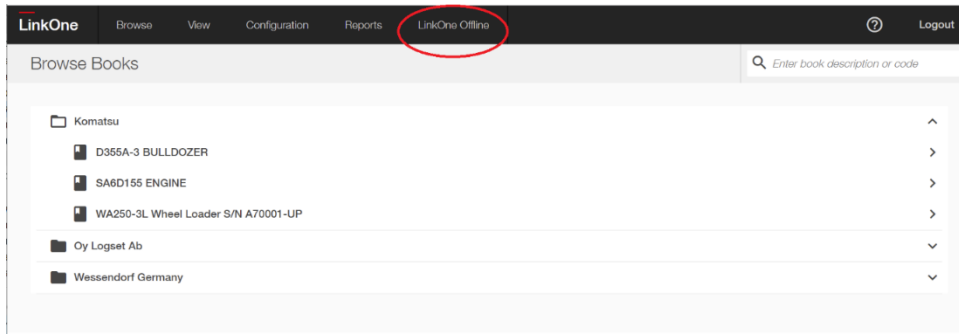
### 8.3.2 Enabling Offline Functionality

The ability to use the offline client must be enabled by the administrator and is controlled by an additional policy called "Allow use offline mode" that is available at both the Role and individual user.

Also, there is an extra accordian entry titled "Allowed Offline Books" that provide the ability to make only a subset of books available offline use. This is a subset of the total number of books the user is permitted to use.

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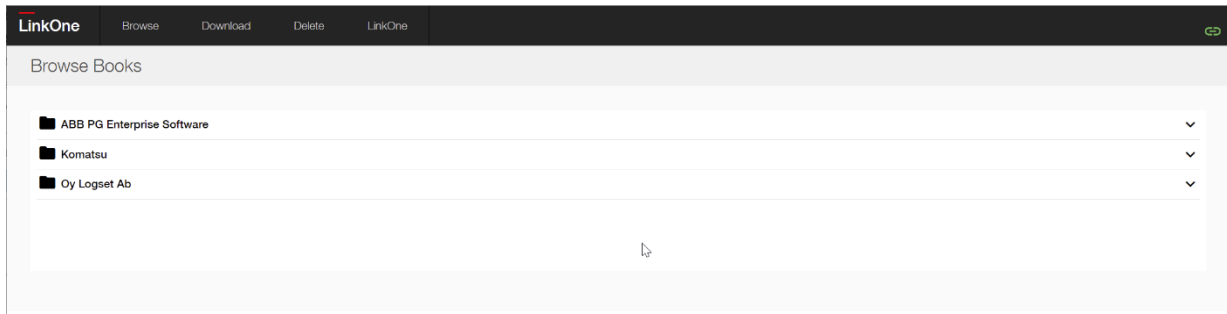
Both of these items must be enabled for the offline option to appear





## 8.4 Initiating the Offline Client

Once the LinkOne WebView Offline Client has been enabled, it can be accessed from the (Online) Browse Books page

The Offline client has similar layout to the online version with the same styling.



The Offline client has a reduced set of functionality.

The current status of the connectivity to the online server is indicated by the icon in the top right hand corner. The green link icon  indicates that the connection with the main server is available. The red link icon  indicates that connectivity to the main server is not available.

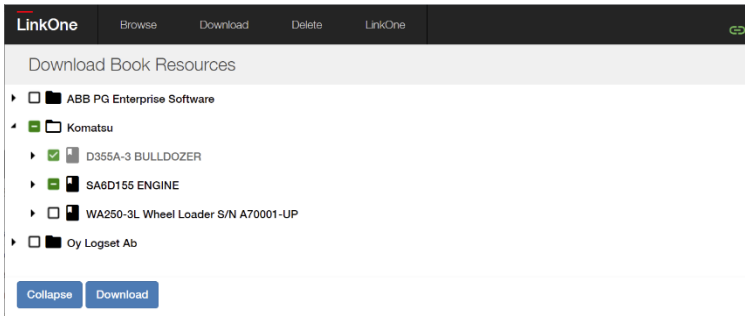
If the individual Publisher folders are expanded, it will list the individual books and whether they are currently available to view. Book content must be downloaded by the Offline client before it is available via the Offline Client.



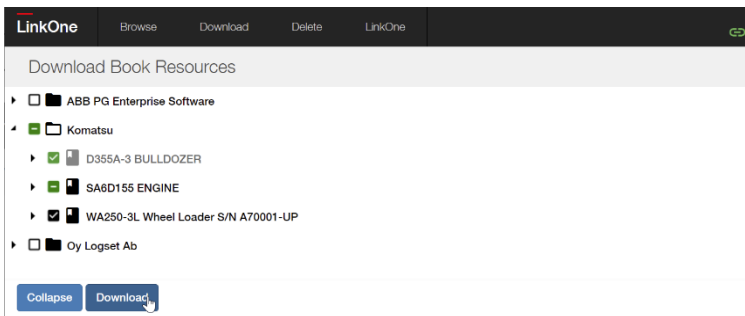
In this example, the Komatsu D355A-3 Bulldozer book has been completely downloaded, while the SA6D155 book has been partially downloaded.

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To download a book, navigate to the Download tab



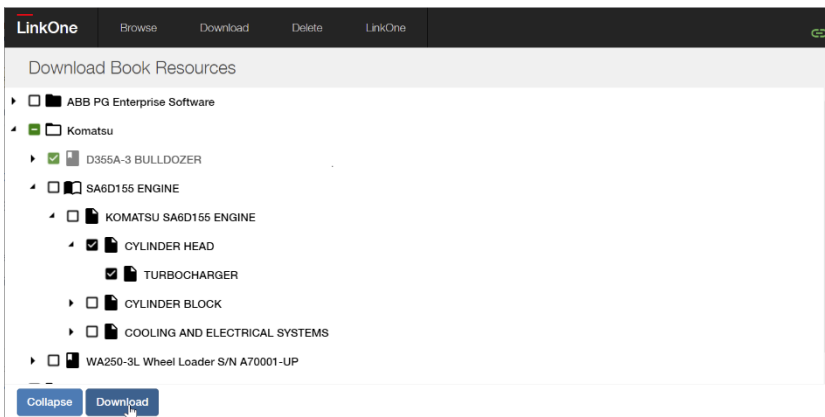
The green colour of the icons indicate book content that has been download. To download an entire book, simply select the check box to the left of the book and then select Download button.



This will initiate the download of the book. The time for the download to complete will rely on a number of factors including the client device, the network bandwidth available and the speed on the main server.

The Offline Client also provides the ability to download individual pages or chapters by allowing the user to download only the required pages.

In the example below, the Table of Contents for the Komatsu SA6D155 book has been expanded and only the pages for the Cylinder Head and the Turbocharger have been selected for download.

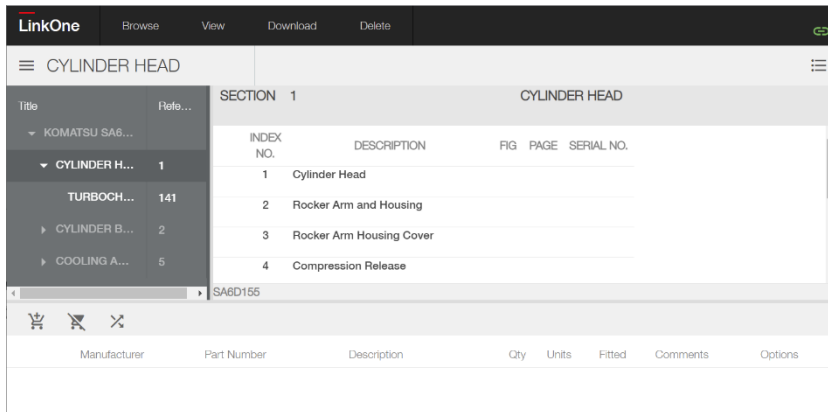


Once the book or the collection of pages have been downloaded, they can be browsed. If only some of the book pages have been downloaded, the full Table of Contents will be displayed, with the pages not downloaded greyed out.

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The following example shows the Table of Contents for the Komatsu SA6D155 Engine Book partly downloaded earlier.



INDEX NO.	DESCRIPTION	FIG	PAGE	SERIAL NO.
1	Cylinder Head			
2	Rocker Arm and Housing			
3	Rocker Arm Housing Cover			
4	Compression Release			


#### 8.4.1 Returning from the Offline Client to the Online system

To return to the online system, navigate to the Browse Books page and then select the LinkOne tab.

### 8.5 Offline Client Selection List (Shopping Cart)

The Offline Client select list utilises a separate selection list called "Offline" that is integrated with the Online Client to allow processing of the parts via the normal established processes.

The experience of adding part is similar to the Online client. A part can be added to the Selection List by either using the '+' sign to the left of the particular entry in the parts list, by 'double clicking' on the applicable callout on the picture or by manually adding the information.

Depending on the capability of the device running the Offline Client, the contents of the Selection List can be exported to a CSV file by using the Export List icon .

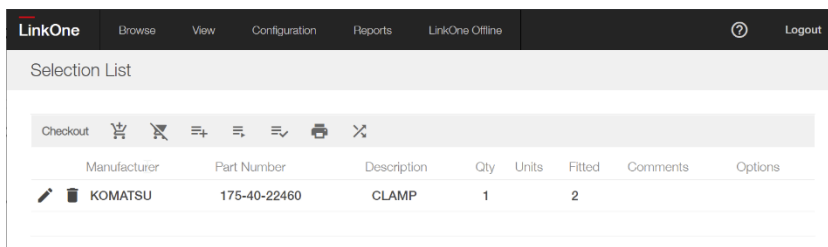
When the Offline Client is online, the Selection List is synchronised with the main server.

#### 8.5.1 Processing the Offline Selection List

Connect to main server and login

From Browse Books, either use the View -> Selection List menu option or Open a book.

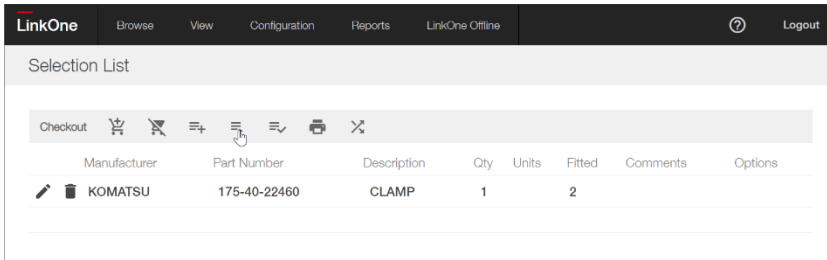
Once the Selection List is viewable, the contents of the 'offline' selection list must be merged with the online selection list. In the following example, there is already one part in the Online Selection List.



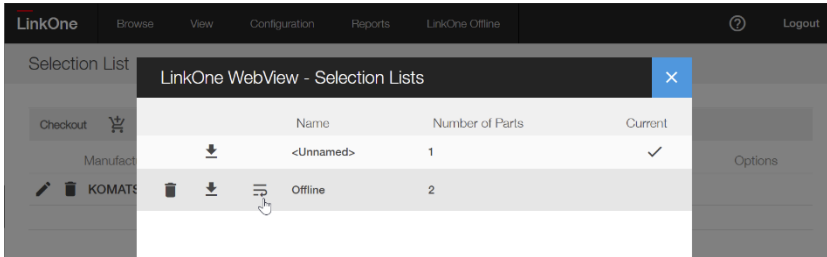
Manufacturer	Part Number	Description	Qty	Units	Fitted	Comments	Options
KOMATSU	175-40-22460	CLAMP	1	2			

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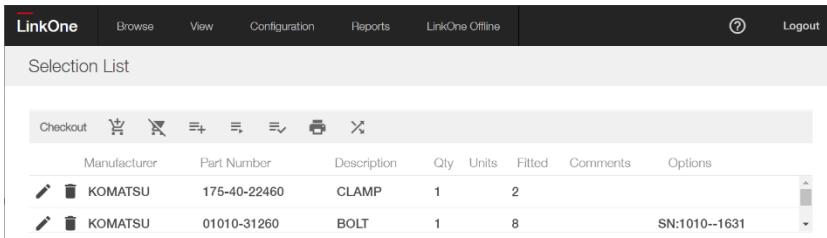
Select the Open List icon



Once the list of Selection Lists is presented, select the merge icon to the left of the Offline list name



This will now merge the contents of the Offline list with the current selection list.

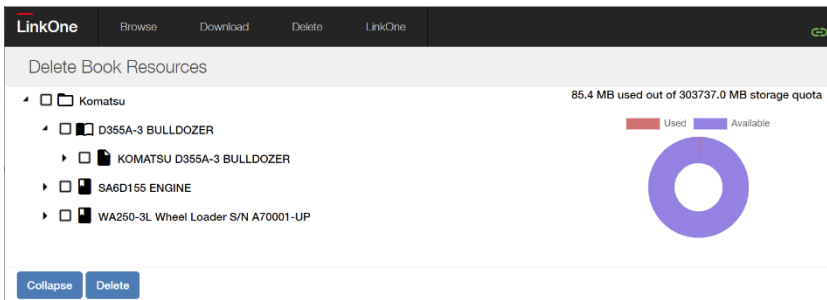


The selection list can now be processed by the normal checkout processes on the Online system.

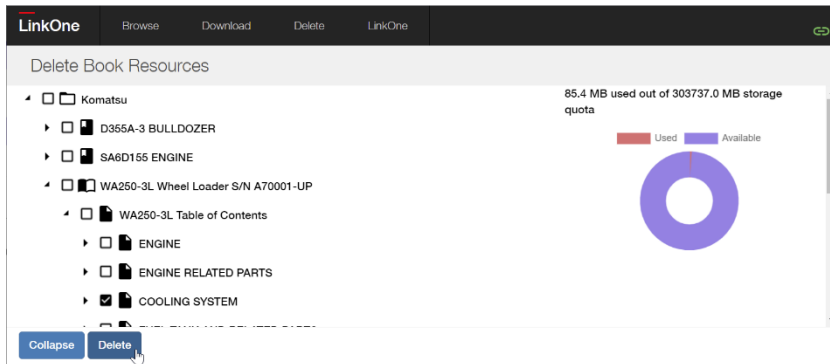
The items in the 'Offline' selection list will remain until the list is cleared.

### 8.6 Managing your Offline content

The Offline Client provides the ability to managing the book content available offline, via the Delete tab. This page only displays the book pages that have been downloaded and currently available offline. Depending on the capabilities of the device being used, details of the offline storage available may be displayed on the right hand side.

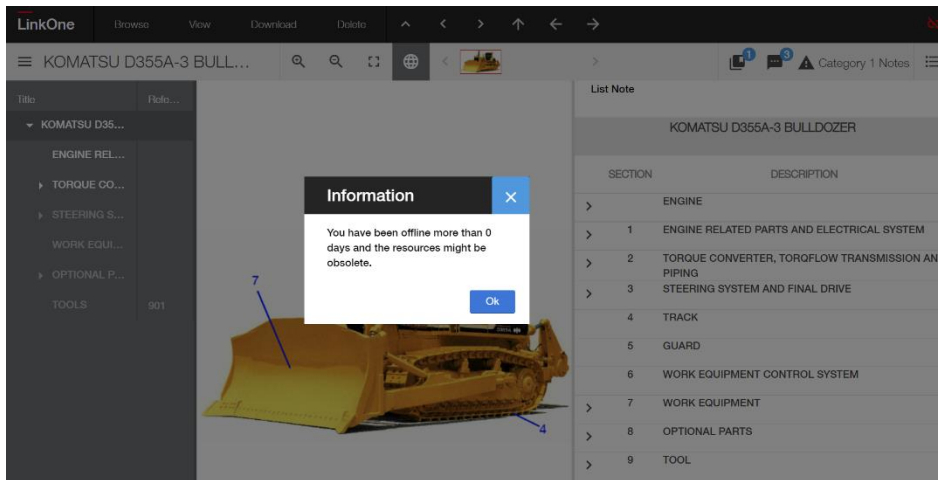


Entire books, selected sections or pages can be deleted by selecting the relevant check box and then pressing the Delete button.



## 8.7 Expiring Offline content

The system includes the ability to configure the minimum number of days an Offline client can remain offline before the user receives a Warning message that the content may be out of date. The information message will appear on opening every book downloaded and will appear similar to the following:-

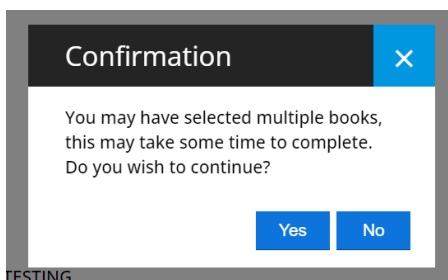


By default, the number of days before the warning appears is 7. This is configured in the Offline web.config file, in the appsettings section

```
<add key="MinOfflineNoticeDays" value="7" />
```

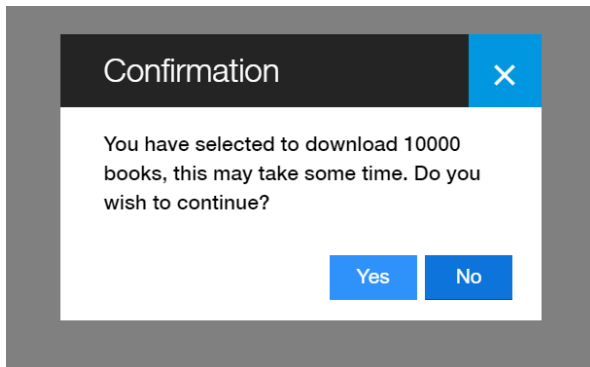
## 8.8 Content download alerts

When a set of books has been selected, if the synchronisation has not been completed, a popup will be displayed to confirm that the user wants to continue



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If the synchronization process has been completed, if the user selects more than the configured number of books (<add key="MaxQtyBookDownloadAlert" value="10" /> in the Offline web.config file), then a popup will be displayed to the user to confirm that they do want to download the number of books.



## 8.9 Synchronising Content

With the LinkOne WebView 3.29 release, the synchronization process has been changed to a background process. The synchronization process will initiated every 24 hours by default.

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LinkOne	Browse	Download	Delete	LinkOne
Browse Books				
	** MINCOM LINKONE TESTING BOOKS			▼
	ABB PG Enterprise Software Demonstration Content			▼
	BOEING BOOK FOR TESTING			▼
	Caterpillar Inc.			▼
	Generated Test Library			▼
	Hitachi			▼
	Hitachi			▼
	Joy Mining			▼
	Komatsu			▼
	Oy Logset Ab			▼
	P&H Mining Equipment			▼
	PANDH COPY FOR LINK TESTING			▼
	parallel graphics			▼
	PLASSER AUSTRALIA PTY LTD			▼
	Ventyx Pty ltd			▼
	Wessendorf Germany			▼

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## 9 Layouts

Layouts determine what types of information the LinkOne viewer displays in the **Parts List** and the **Selection List** controls, as well as the appearance of that information. Layouts also determine the appearance of printed content.

Publishers can use the LinkOne publishing system to create customized layouts and then include them in a LinkOne book. Users cannot change or delete publisher layouts. However, users can define their own customized selection list layout files. This lets users specify the contents and appearance of selection lists onscreen and when printed or exported.

**Note: Please ensure that if you are creating UTF8 \*.SLF files, all files start with the standard UTF8 BOM (0xEFBBBF).**

The LinkOne viewer includes default layouts for parts lists and selection lists. If a book does not include custom layouts, then the LinkOne viewer uses the default layouts.

The rest of this section explains how to create your own layouts, including structure, language, and settings.

### 9.1 The Layout Sections

A typical layout for a parts list or a selection list contains four sections:

- Header
- Footer
- Headings
- Body

Each layout section can be empty, customized, or hidden.

The **Parts List** control and the **Selection List** control always display the header section and the footer section unless the layout hides these sections. Both controls also display the headings section and the body section.



For an embedded PDF or HTML document, the **Parts List** control displays only the header section and the footer section. It does not display the headings section or the body section.

The LinkOne viewer automatically assigns the headings section and the body section to the currently active layout. You define the headings section using the HEADINGS tag. The remainder of the layout defines the body section. The entries for the headings section and the body section use the same column names unless they belong to different classes.

The following example shows a sample layout definition file.

```
<LAYOUT Description="My Layout Definition">
  <!-- start of header format -->
  <FORMAT name="list_header">
    <ROW>
      <CELL FONT_HEIGHT=16pt BOLD>This is the header area...
    </ROW>
  </FORMAT>
  <!-- start of footer format -->
  <FORMAT name="list_footer">
    <ROW>
      <CELL FONT_HEIGHT=16pt BOLD>This is the footer area...
    </ROW>
  </FORMAT>
  <!-- start of body format -->
```

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```

<FORMAT BORDER>
<HEADINGS>
<!-- headings format definitions -->
<ROW>
  <CELL>Heading Cell 1
  <CELL>Heading Cell 2
  <CELL COLSPAN=2>Heading Cell 3 & 4
  <CELL>Heading Cell 5
</ROW>
</HEADINGS>
<!-- body format definitions -->
<ROW>
  <CELL>Item 1
  <CELL>Item 2
  <CELL>Item 3
  <CELL>Item 4
  <CELL>Item 5
</ROW>
</FORMAT>
</LAYOUT>

```

The figures below show how the **Parts List** control and the **Selection List** control display the sample layout definition file.

Heading Cell 1	Heading Cell 2	Heading Cell 3 & 4	Heading Cell 5	
Item 1	Item 2	Item 3	Item 4	Item 5

Figure 1: Example Layout Displayed in the Parts List

Manuf	Part Number	Description	Qty	Units	Fitted	Comments	Option Codes
TEST	part1	1	1				

Figure 2: Example Layout Displayed in the Selection List

Area	Description
1	Header

2	Footer
3	Headings
4	Body

## 9.2 The Structure of a Layout

You define layouts in a layout definition (\*.fmt) file. A layout definition includes one main section that is contained inside the LAYOUT tag. You can place any number of format sections inside the LAYOUT tag. The format sections define properties for the different parts of a layout.

The following example shows the basic structure of a layout definition file.

```
<LAYOUT>
  <!-- Beginning of Layout Section -->
  <FORMAT>
    <!-- First format section -->
  </FORMAT>
  <FORMAT>
    <!-- Second format section -->
  </FORMAT>
  <!-- End of Layout Section -->
</LAYOUT>
```

Each format section is contained inside a FORMAT tag. A format section can contain a headings section, defined by the HEADINGS tag. The remainder of the format section defines the body section.

When creating a format section, keep in mind the following rules:

The headings section is required if the format section is for parts list entries or selection list entries.

- A row section can contain any number of cells.
- A cell section can contain text, comments, or field values. Field values are dynamically populated with text from the currently open book.
- The header section and the footer section do not include headings definitions. Also, the row and column dimensions in the header section and the footer section affect only these sections of the layout.

The following example shows the basic structure of a format section.

```
<FORMAT>
  <HEADINGS>
  <!-- Body Headings definition -->
  <ROW>
    <!-- Heading Row definitions -->
    <CELL>
    <CELL>
    ...
  </ROW>
  ...
</HEADINGS>
  <!-- Start Body Row definitions -->
  <ROW>
    <CELL>
    <CELL>
    ...
  </ROW>
  ...
</FORMAT>
```



## 9.2.1 Tags, Attributes, and Comments

The language LinkOne uses to define layouts is similar to XML (Extensible Markup Language). However, layout definition files are not compliant with the XML standard.

The XML language defines layouts using two main components: tags and attributes.

### 9.2.1.1.1 Tags

A tag is a named identifier that can have any number of attributes and any number of child tags. A complete tag definition has an opening tag and a closing tag, though this is not always enforced in layouts. However, it is best practice to use closing tags to ensure your layouts are easy to read and to avoid formatting errors.

The following example shows a sample tag.

```
<MYTAG> <!-- This is an opening tag with the identifier MYTAG. -->
...
</MYTAG> <!-- This is a closing tag. -->
```

### 9.2.1.1.2 Attributes

An attribute is a named property of a tag that can have a specified value. A tag can have any number of attributes. In strict XML, an attribute always has a value. However, in LinkOne layouts, most attributes do not require a value. Attributes are always placed inside the opening tag.

The following example shows a sample tag with attributes.

```
<MYTAG myattribute1="value" myattribute2="value2" myattribute3 ... >
...
</MYTAG>
```



Attributes and tag names cannot contain spaces. If a value requires spaces, enclose it in quotation marks (""). It is best practice to put all attribute values inside quotation marks.

### 9.2.1.1.3 Comments

You can use comment tags to make notes inside of your layouts. Comments can explain what the layout does or help readers understand a layout definition. Comment tags do not affect the output of layouts. While it is not necessary to comment your layouts, good commenting is a best practice and can help others who work with your layout.

To create a comment, enclose the comment in opening (<!--) and closing (-->) comment tags. The following example shows a sample comment:

### 9.2.1.1.4 Usage

```
<!-- commented text -->
```

## 9.2.2 Dimensions in Layouts

A dimension is any numeric value followed by a dimension code.

### 9.2.2.1.1 Optional Values

Some tag attributes accept a value, for example, the BORDER attribute of the FORMAT tag.

In the following example, no value is specified for the BORDER attribute. The result is a one pixel border on all cells in the format.

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```
<FORMAT border>
```

In the following examples, a dimension is specified for the BORDER attribute. In the first example, the result is a two pixel border on all cells in the format. In the second example, the result is a two millimeter border on all cells in the format. (If you do not specify a unit of measurement, the layout uses pixels.)

```
<FORMAT border=2> <!-- Dimension is 2 pixels. -->
OR
<FORMAT border=2mm> <!-- Dimension is 2 millimeters. -->
```

In usage examples, attributes that optionally accept a value are enclosed in brackets. The following example indicates that the BORDER attribute can accept but does not require a value.

```
BORDER [=n]
```

#### 9.2.2.1.1.2 Required Values

Some tag attributes require you to specify a value, for example, the FONT\_SIZE attribute. If you do not specify a value for the FONT\_SIZE attribute, the layout does not display text correctly.

In usage examples, attributes that require a value are not contained in brackets. The following example indicates that the FONT\_SIZE attribute requires a value.

```
FONT_SIZE=n
```

#### 9.2.2.1.1.3 Dimension Codes

A dimension code specifies the unit of measurement for a value. The table below describes the available codes.

Dimension Code	Description
%	Percentage. For text, the base size of the font determines the measurement. For screen measurements, the screen resolution determines the measurement. The output can vary from computer to computer depending on the user's system settings.
c	Character Widths. The current font and the font properties on the current computer determine the measurement.
in	Inches. Screen resolution and font do not affect this unit of measurement.
mm	Millimeters. Screen resolution and font do not affect this unit of measurement.
p	Pixels. This is the default unit of measurement. If you do not specify a dimension code, the layout uses pixels for the unit of measurement. The size of a pixel depends on the screen resolution and the DPI (dots per inch) settings used by the operating system.

## 9.3 Screen and Print Layouts

A LinkOne book can use two kinds of layouts:

- Screen layouts determine how the parts list appears onscreen.

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- Print layouts determine how the parts list appears when printed.

Most layout attributes affect both screen and print layouts. However, some attributes only affect print layouts.

## 9.4 Layout Tag Library

The topics in this section describe the tags you can use in a LinkOne layout. The entry for each tag includes a description, the attributes of the tag, and an example of usage.

The table below provides an overview of the LinkOne layout tags.

Tag	Description
LAYOUT	The LAYOUT tag defines the layout section. The opening LAYOUT tag appears at the start of the layout, and the closing tag appears at the end of the layout. A layout can only have one layout section. The layout section contains all format sections.
FORMAT	The FORMAT tag defines a format section. A format section can be named or unnamed. The name determines what section the format defines.
HEADINGS	The HEADINGS tag defines the headings section in a list body format. There can be only one headings section in a format. Headings are displayed only within the list body format.
ROW	The ROW tag defines a row within a heading or format. A row can contain any number of cells.
CELL	The CELL tag defines a cell within a row. A cell can contain static text, comments, or dynamic values populated from field values.
FIELD	The FIELD tag resides within a CELL tag and provides access to built-in and custom field values.
PICTURE	The PICTURE tag embeds a picture inside a layout cell.
LISTFIELD	The LISTFIELD tag displays list field values in a layout cell.
BOOKFIELD	The BOOKFIELD tag displays the contents of book fields that have been built into the book.
VALUE	The VALUE tag displays the contents of a value note.
PICTUREFIELD	The PICTUREFIELD tag displays fields from the currently viewed picture.

TABLE	The TABLE tag defines a table within a cell. In turn, the table can have its own rows and cells.
Comment	The comment tag lets you include a comment in a layout file. Comments do not affect the layout.

### 9.4.1 LAYOUT Tag

The LAYOUT tag contains all formats that make up a layout file. A layout file can have only one opening LAYOUT tag and one closing LAYOUT tag.

The LAYOUT tag is optional. If you omit the LAYOUT tag, the LinkOne viewer uses the layout name defined in the BOOK.INF file.

Use the attributes of the LAYOUT tag to specify preferred languages and search sets, and to lock layouts to a security key. You can also use attributes to specify onscreen and printed margins.

All LAYOUT tag attributes are optional and can appear in any order.

#### 9.4.1.1.1 Usage

```
<LAYOUT attribute='value'....>
  [
    <FORMAT>....
  ]
</LAYOUT>
```

#### 9.4.1.2 LAYOUT Tag: Screen Attributes

The table below describes the screen attributes for the LAYOUT tag.

Attribute	Usage and Description
DESCRIPTION	DESCRIPTION='My Layout Description' The name of the layout on the <b>Layouts</b> tab of the <b>Book Properties</b> dialog box ( <b>File » Book Properties</b> ). If you do not specify a description, the LinkOne viewer uses the name of the layout defined in the BOOK.INF file. If the BOOK.INF file does not specify a name, the LinkOne viewer uses the identifier in the BOOK.INF file. If the BOOK.INF file does not specify an identifier, the LinkOne viewer numbers layouts in order, starting with 1.
ID	ID='LayoutID' A unique identifier for the layout. The ID supercedes the name specified in the BOOK.INF file. This attribute is usually used for multilingual layouts. Each layout uses the same value for the ID attribute but uses a different value for the LANGUAGE attribute.

STATUS	SECURITY LEVEL	DOCUMENT ID	REV.	LANG.	PAGE
Approved	Public		A	en	84/113

LANGUAGE	LANGUAGE='en' The preferred language for the layout. The value must be a valid ISO 639 language code. For example, use EN for English.
PIC_TITLES_FIELD	PIC_TITLES_FIELD='MyPicField' The name of the picture field that the LinkOne viewer displays as the picture title. The field name must exist in the book, otherwise the LinkOne viewer uses the default picture title. This attribute is usually used for multilingual books.
PREFERRED_SEARCH_SET	PREFERRED_SEARCH_SET='MySearchSet' The default search set. If you open another page with a different PREFERRED_SEARCH_SET value, the new value is used. If the LinkOne viewer cannot find the search set, it uses the default search set for the book.
SECURITY_LOCK	SECURITY_LOCK='security_lock_key' The key used to lock a layout to certain users. Use LinkOne Administrator to generate the security lock key. A user must install the key to see or select the layout.

#### 9.4.1.3 LAYOUT Tag: Print Attributes

The following sections describe the print attributes for the LAYOUT tag.

##### 9.4.1.3.1.1 Sheetfacing

Sheet facing attributes specify how printed output appears on a printed sheet. The table below describes the sheet facing attributes for the LAYOUT tag.

Attribute	Usage and Description
SHEETFACING	SHEETFACING=facing_value The sheet facing for all pages.
LIST_SHEETFACING	LIST_SHEET_FACING=facing_value The sheet facing for the parts list.
PIC_SHEETFACING	PIC_SHEET_FACING=facing_value The sheet facing for pictures.

The table below describes the valid values you can use for the SHEETFACING, LIST\_SHEETFACING, and PIC\_SHEETFACING attributes.

STATUS	SECURITY LEVEL	DOCUMENT ID	REV.	LANG.	PAGE
Approved	Public		A	en	85/113

Facing Value	Description
ANY	The first sheet is printed as a right sheet unless otherwise specified. All remaining pages alternate between left pages and right pages.  This facing value is useful for double-sided printing.
LEFT	Each sheet is printed as a left sheet.
1ST_LEFT	The first sheet is printed as a left sheet. All remaining sheets alternate between right sheets and left sheets.
RIGHT	Each sheet is printed as a right sheet.
1ST_RIGHT	The first sheet is printed as a right sheet. All remaining sheets alternate between left sheets and right sheets.

#### 9.4.1.3.1.2 Margins

Margin attributes affect only print layouts and do not affect screen layouts. If you do not specify a dimension code for the value, the layout uses pixels as the unit of measurement.

The table below describes the margin attributes of the LAYOUT tag.

Attribute	Usage and Description
TOP_MARGIN	TOP_MARGIN=n The distance between the top of the sheet and the printed area.  If you do not specify a TOP_MARGIN value, the layout uses a default value of 10mm.
LIST_TOP_MARGIN	LIST_TOP_MARGIN=n The distance between the top of a sheet and the area on that sheet for printing parts lists content.
LIST_1ST_TOP_MARGIN	LIST_1ST_TOP_MARGIN=n The distance between the top of the first sheet of printed parts list content and the printed area.
PIC_TOP_MARGIN	PIC_TOP_MARGIN=n The distance between the top of the sheet and the area on that sheet for printing pictures.

PIC_1ST_TOP_MARGIN	PIC_1ST_TOP_MARGIN=n The distance between the top of the first sheet of printed pictures and the printed area.
BOTTOM_MARGIN	BOTTOM_MARGIN=n The distance between the bottom of the sheet and the printed area. If you do not specify a BOTTOM_MARGIN value, the layout uses a default value of 10mm.
LIST_BOTTOM_MARGIN	LIST_BOTTOM_MARGIN=n The distance between the bottom of a sheet and the area on that sheet for printing parts lists content.
LIST_1ST_BOTTOM_MARGIN	LIST_1ST_BOTTOM_MARGIN=n The distance between the bottom of the first sheet of printed parts list content and the printed area.
PIC_BOTTOM_MARGIN	PIC_BOTTOM_MARGIN=n The distance between the bottom of the sheet and the area on that sheet for printing pictures.
PIC_1ST_BOTTOM_MARGIN	PIC_1ST_BOTTOM_MARGIN=n The distance between the bottom of the first sheet of printed pictures and the printed area.
LEFT_MARGIN	LEFT_MARGIN=n The distance between the left edge of the sheet and the printed area. If you do not specify a LEFT_MARGIN value, the layout uses a default value of 5mm.
LIST_LEFT_MARGIN	LIST_LEFT_MARGIN=n The distance between the left edge of a sheet and the area on that sheet for printing parts lists content.
LIST_1ST_LEFT_MARGIN	LIST_1ST_LEFT_MARGIN=n The distance between the left edge of the first sheet of printed parts list content and the printed area.

PIC_LEFT_MARGIN	PIC_LEFT_MARGIN=n The distance between the left edge of the sheet and the area on that sheet for printing pictures.
PIC_1ST_LEFT_MARGIN	PIC_1ST_LEFT_MARGIN=n The distance between the left edge of the first sheet of printed pictures and the printed area.
RIGHT_MARGIN	RIGHT_MARGIN=n The distance between the right edge of the sheet and the printed area. If you do not specify a LEFT_MARGIN value, the layout uses a default value of 5mm.
LIST_RIGHT_MARGIN	LIST_RIGHT_MARGIN=n The distance between the right edge of a sheet and the area on that sheet for printing parts lists content.
LIST_1ST_RIGHT_MARGIN	LIST_1ST_RIGHT_MARGIN=n The distance between the right edge of the first sheet of printed parts list content and the printed area.
PIC_RIGHT_MARGIN	PIC_RIGHT_MARGIN=n The distance between the right edge of the sheet and the area on that sheet for printing pictures.
PIC_1ST_RIGHT_MARGIN	PIC_1ST_RIGHT_MARGIN=n The distance between the right edge of the first sheet of printed pictures and the printed area.

#### 9.4.1.3.1.3 Page Order

The page order attribute specifies the order in which the LinkOne viewer prints pictures and parts lists from a page. The page order attribute does not override any book or page PRINT\_ORDER attribute defined in the book. If the PRINT\_ORDER attribute is defined for a number of specific pages, then the specified PRINT\_ORDER is used for those pages only, and the layout page order is used as the default for all other pages. If the PRINT\_ORDER attribute is defined on the book, then specifying the page order attribute on the layout has no effect. The table below describes the page order attribute of the LAYOUT tag.

Attribute	Usage and Description
-----------	-----------------------

STATUS	SECURITY LEVEL	DOCUMENT ID	REV.	LANG.	PAGE
Approved	Public		A	en	88/113



PAGE_ORDER	PAGE_ORDER=ordering_value The order used when printing pictures and parts lists from a page.
------------	---

The table below describes the valid values you can use for the PAGE\_ORDER attribute.

Ordering Value	Description
ALL_PICS_FIRST	All pictures are printed first, followed by all parts list documents (parts lists and embedded documents). If you do not specify a PAGE_ORDER value, the LinkOne viewer uses this value.
ALL_LIST_FIRST	All parts list documents (parts lists and embedded documents) are printed first, followed by all pictures.
INTERLEAVED_LIST_FIRST	Printed sheets alternate between parts list documents and pictures. Interleaving continues until all page content is printed. The REPEAT_SHEET attribute determines if pictures or parts list sheets are repeated when the other alternate runs out.
INTERLEAVED_PIC_FIRST	Printed sheets alternate between pictures and parts list documents. Interleaving continues until all page content is printed. The REPEAT_SHEET attribute determines if pictures or parts list sheets are repeated when the other alternate runs out.

#### 9.4.1.3.1.4 Repeating Sheets

When PAGE\_ORDER is set to one of the interleaved values, then alternating parts list sheets and picture sheets are printed. When parts list sheets run out before picture sheets, then blank sheets are substituted. Likewise when picture sheets run out before parts list sheets, then blank sheets are substituted. Specifying a repeat sheet value allows you to replace those blank sheets with sheets having content.

Attributes	Usage and Description
REPEAT_SHEET	REPEAT_SHEET=repeat_sheet_value What sheet to repeat when content is exhausted during interleaved printing. If you do not specify a REPEAT_SHEET value, then blank sheets are used to fill out interleaved sheet pairs.

STATUS	SECURITY LEVEL	DOCUMENT ID	REV.	LANG.	PAGE
Approved	Public		A	en	89/113

The table below describes the valid values you can use for the REPEAT\_SHEET attribute.

Repeat Sheet Value	Description
REPEAT_BLANK	Blank sheets are used to fill out interleaved sheet pairs.
REPEAT_ALL	The sheets that have run out are reprinted from the start until the other pair runs out.
REPEAT_FIRST	The first sheet is reprinted until the other pair runs out.
REPEAT_LAST	The last sheet is reprinted until the other pair runs out.

#### 9.4.1.3.1.5 Print Templates

Use print templates to specify the layout of content on each printed sheet. The table below describes the print template attribute of the LAYOUT tag.

Attributes	Usage and Description
PRINT_TEMPLATE	<p>PRINT_TEMPLATE=template_value</p> <p>The print template to use when printing LinkOne content.</p> <p>If you do not specify a PRINT_TEMPLATE value, when you print a page that does not have any parts lists entries, a blank sheet is printed.</p>

The table below describes the valid values you can use for the PRINT\_TEMPLATE attribute.

Template Value	Description
SPLIT_FIXED	<p>The pictures and parts lists for each page are printed on the same sheet.</p> <p>If the page does not have any pictures or the page has an embedded document the parts list is printed on separate sheets.</p>
SEPARATE	<p>The pictures and parts lists for each page are printed on separate sheets.</p> <p>If you do not specify a PRINT_TEMPLATE value, the LinkOne viewer uses this value.</p>
NO_LIST	<p>Only pictures are printed.</p> <p>Use this setting when there are no parts lists that need to be printed.</p>

#### 9.4.1.3.1.6 Blank Page Message

Use the blank page message to insert a blank sheet. This can help you properly order sheets that you plan to bind into a book.

The table below describes the blank page message attribute of the LAYOUT tag.

Attribute	Usage and Description
BLANK_PAGE	BLANK_PAGE=message The message printed in the center of the blank sheet. For example, "This Page Intentionally Left Blank".

#### 9.4.1.4 LAYOUT Tag: Margins Attributes

Margin attributes affect only print layouts and do not affect screen layouts. If you do not specify a dimension code for the value, the layout uses pixels as the unit of measurement.

The table below describes the margin attributes of the LAYOUT tag.

Attribute	Usage and Description
TOP_MARGIN	TOP_MARGIN=n The distance between the top of the sheet and the printed area. If you do not specify a TOP_MARGIN value, the layout uses a default value of 10mm.
LIST_TOP_MARGIN	LIST_TOP_MARGIN=n The distance between the top of a sheet and the area on that sheet for printing parts lists content.
LIST_1ST_TOP_MARGIN	LIST_1ST_TOP_MARGIN=n The distance between the top of the first sheet of printed parts list content and the printed area.
PIC_TOP_MARGIN	PIC_TOP_MARGIN=n The distance between the top of the sheet and the area on that sheet for printing pictures.

PIC_1ST_TOP_MARGIN	PIC_1ST_TOP_MARGIN=n The distance between the top of the first sheet of printed pictures and the printed area.
BOTTOM_MARGIN	BOTTOM_MARGIN=n The distance between the bottom of the sheet and the printed area. If you do not specify a BOTTOM_MARGIN value, the layout uses a default value of 10mm.
LIST_BOTTOM_MARGIN	LIST_BOTTOM_MARGIN=n The distance between the bottom of a sheet and the area on that sheet for printing parts lists content.
LIST_1ST_BOTTOM_MARGIN	LIST_1ST_BOTTOM_MARGIN=n The distance between the bottom of the first sheet of printed parts list content and the printed area.
PIC_BOTTOM_MARGIN	PIC_BOTTOM_MARGIN=n The distance between the bottom of the sheet and the area on that sheet for printing pictures.
PIC_1ST_BOTTOM_MARGIN	PIC_1ST_BOTTOM_MARGIN=n The distance between the bottom of the first sheet of printed pictures and the printed area.
LEFT_MARGIN	LEFT_MARGIN=n The distance between the left edge of the sheet and the printed area. If you do not specify a LEFT_MARGIN value, the layout uses a default value of 5mm.
LIST_LEFT_MARGIN	LIST_LEFT_MARGIN=n The distance between the left edge of a sheet and the area on that sheet for printing parts lists content.
LIST_1ST_LEFT_MARGIN	LIST_1ST_LEFT_MARGIN=n The distance between the left edge of the first sheet of printed parts list content and the printed area.

PIC_LEFT_MARGIN	PIC_LEFT_MARGIN=n The distance between the left edge of the sheet and the area on that sheet for printing pictures.
PIC_1ST_LEFT_MARGIN	PIC_1ST_LEFT_MARGIN=n The distance between the left edge of the first sheet of printed pictures and the printed area.
RIGHT_MARGIN	RIGHT_MARGIN=n The distance between the right edge of the sheet and the printed area.  If you do not specify a LEFT_MARGIN value, the layout uses a default value of 5mm.
LIST_RIGHT_MARGIN	LIST_RIGHT_MARGIN=n The distance between the right edge of a sheet and the area on that sheet for printing parts lists content.
LIST_1ST_RIGHT_MARGIN	LIST_1ST_RIGHT_MARGIN=n The distance between the right edge of the first sheet of printed parts list content and the printed area.
PIC_RIGHT_MARGIN	PIC_RIGHT_MARGIN=n The distance between the right edge of the sheet and the area on that sheet for printing pictures.
PIC_1ST_RIGHT_MARGIN	PIC_1ST_RIGHT_MARGIN=n The distance between the right edge of the first sheet of printed pictures and the printed area.

#### 9.4.1.5 LAYOUT Tag: Sheet Facing Attributes

Sheet facing attributes specify how printed output appears on a printed sheet. The table below describes the sheet facing attributes for the LAYOUT tag.

Attribute	Usage and Description
SHEETFACING	SHEETFACING=facing_value The sheet facing for all pages.
LIST_SHEETFACING	LIST_SHEET_FACING=facing_value The sheet facing for the parts list.

PIC_SHEETFACING	PIC_SHEET_FACING=facing_value The sheet facing for pictures.
-----------------	---

The table below describes the valid values you can use for the SHEETFACING, LIST\_SHEETFACING, and PIC\_SHEETFACING attributes.

Facing Value	Description
ANY	The first sheet is printed as a right sheet unless otherwise specified. All remaining pages alternate between left pages and right pages. This facing value is useful for double-sided printing.
LEFT	Each sheet is printed as a left sheet.
1ST_LEFT	The first sheet is printed as a left sheet. All remaining sheets alternate between right sheets and left sheets.
RIGHT	Each sheet is printed as a right sheet.
1ST_RIGHT	The first sheet is printed as a right sheet. All remaining sheets alternate between left sheets and right sheets.

#### 9.4.2 Inherited Attributes

Some attributes can affect more than one tag. If you apply an attribute (for example, TOP\_BORDER) to a high level tag (for example, LAYOUT), all child tags inherit the attribute.

You can override an inherited attribute unless otherwise specified. If you override an inherited value for an attribute, then all children of that attribute inherit the override value.

The order of inheritance follows the structure of the layout. For example:

```

FORMAT
  --> LAYOUT
    --> HEADINGS
      --> ROWS
        --> CELLS
          --> TABLE
            --> ....

```

In this case, if you define a FONT attribute on a ROW, then all CELL tags in that row inherit the font property. If you define a FONT attribute on a CELL, this font property overrides the ROW font property.

STATUS	SECURITY LEVEL	DOCUMENT ID	REV.	LANG.	PAGE
Approved	Public		A	en	94/113

### 9.4.2.1 Rules

A rule is a line drawn across a layout element such as a row or cell. You can define rule attributes for FORMAT, HEADINGS, ROW, CELL and TABLE tags. Rule attributes are a common element in layouts.

Keep in mind the following behaviors when working with rules:

- If you define a rule attribute for a tag, it is inherited by any child tags that support the rule attribute. (The child tags can override an inherited rule attribute.)
- If you define a top or bottom rule for a cell, all cells in the same row inherit the rule.
- If you define a left or right rule for a cell, all cells in the same column inherit the rule.
- A vertical rule passes through any gap in entries, and through headings and spanned cells as long as those cells use the same format class. If a cell uses a different format (or format class), the rule does not pass through it.

#### 9.4.2.1.1.1 Usage

```
<TAG [ [NO]TOP_RULE | [NO]BOTTOM_RULE | [NO]LEFT_RULE | [NO]RIGHT_RULE ] >
    ...
</TAG>
```

The table below describes the rule attributes.

Attribute	Usage and Description
TOP_RULE   NOTOP_RULE	TOP_RULE[=n]   [NO]TOP_RULE Draws a rule across the top edge of a format, row, or cell. Specify a dimension to set the thickness of the rule. If you do not specify a dimension, the rule is 1 pixel thick. NOTOP_RULE overrides any inherited values, and no rule is drawn on the top edge of a row or cell.
BOTTOM_RULE   NOBOTTOM_RULE	BOTTOM_RULE[=n]   [NO]BOTTOM_RULE Draws a rule across the bottom edge of a format, row, or cell. Specify a dimension to set the thickness of the rule. If you do not specify a dimension, the rule is 1 pixel thick. NOBOTTOM_RULE overrides any inherited values, and no rule is drawn on the bottom edge of a row or cell.

LEFT_RULE   NOLEFT_RULE	LEFT_RULE[=n]   [NO]LEFT_RULE Draws a rule across the left edge of a format, row, or cell. Specify a dimension to set the thickness of the rule. If you do not specify a dimension, the rule is 1 pixel thick. NOLEFT_RULE overrides any inherited values, and no rule is drawn on the left edge of a row or cell.
RIGHT_RULE   NORIGHT_RULE	RIGHT_RULE[=n]   [NO]RIGHT_RULE Draws a rule across the right edge of a format, row, or cell. Specify a dimension to set the thickness of the rule. If you do not specify a dimension, the rule is 1 pixel thick. NORIGHT_RULE overrides any inherited values, and no rule is drawn on the right edge of a row or cell.

#### 9.4.2.2 Borders

A border is a line drawn around a layout element such as a row or cell. You can define border attributes for FORMAT, HEADINGS, ROW, CELL, and TABLE tags. Border attributes are a common element in layouts.

If you define a border attribute for a tag, it is inherited by any child tags that support the border attribute. (The child tags can override an inherited border attribute.)

##### 9.4.2.2.1.1 Usage

```
<TAG [ [NO]BORDER | [NO]TOP_BORDER | [NO]BOTTOM_BORDER | [NO]LEFT_BORDER | [NO]RIGHT_BORDER ] >  
    ...  
</TAG>
```

The table below describes the border attributes.

Attribute	Usage and Description
BORDER   NOBORDER	BORDER[=n]   [NO]BORDER Draws a border around all edges of a format, row, or cell. Specify a dimension code to set the thickness of the border. If you do not specify a dimension code, the rule is 1 pixel thick. NOBORDER overrides any inherited values, and no border is drawn around the edges of a row or cell.



TOP_BORDER   NOTOP_BORDER	TOP_BORDER[=n]   [NO]TOP_BORDER Draws a border on the top edge of a format, row, or cell. Specify a dimension code to set the thickness of the border. If you do not specify a dimension code, the rule is 1 pixel thick. NOTOP_BORDER overrides any inherited values, and no border is drawn on the top edge of a row or cell.
BOTTOM_BORDER   NOBOTTOM_BORDER	BOTTOM_BORDER[=n]   [NO]BOTTOM_BORDER Draws a border on the bottom edge of a format, row, or cell. Specify a dimension code to set the thickness of the border. If you do not specify a dimension code, the rule is 1 pixel thick. NOBOTTOM_BORDER overrides any inherited values, and no border is drawn on the bottom edge of a row or cell.
LEFT_BORDER   NOLEFT_BORDER	LEFT_BORDER[=n]   [NO]LEFT_BORDER Draws a border on the left edge of a format, row, or cell. Specify a dimension code to set the thickness of the border. If you do not specify a dimension code, the rule is 1 pixel thick. NOLEFT_BORDER overrides any inherited values, and no border is drawn on the left edge of a row or cell.
RIGHT_BORDER   NORIGHT_BORDER	RIGHT_BORDER[=n]   [NO]RIGHT_BORDER Draws a border on the right edge of a format, row, or cell. Specify a dimension code to set the thickness of the border. If you do not specify a dimension code, the rule is 1 pixel thick. NOTOP_BORDER overrides any inherited values, and no border is drawn on the right edge of a row or cell.

### 9.4.2.3 Fonts

Use font attributes to change the appearance of text in a layout. Usually font attributes apply to a CELL tag. However, if you set font attributes for a row, all cells in that row inherit the font attributes.



FONT attributes override any font settings in the parts lists and selection list layouts selected on the Configuration dialog box.

#### 9.4.2.3.1.1 Usage

```
<TAG [ FONT_CHARSET | FONT_FAMILY | FONT_HEIGHT | FONT_NAME | FONT_PITCH | ... ] >
...
</TAG>
```

The table below describes the font attributes.

Attribute	Usage and Description
FONT_CHARSET   NOFONT_CHARSET	FONT_CHARSET=charset   NOFONT_CHARSET The character set to use for all text. This is required only if you use a different character set, such as Japanese or Chinese. Possible values are: ANSI, OEM, SHIFTJIS, SYMBOL NOFONT_CHARSET overrides inherited font character set properties and uses the operating system default.
FONT_FAMILY   NOFONT_FAMILY	FONT_FAMILY=font family   NOFONT_FAMILY The font family to use for text. Possible values are: DECORATIVE, MODERN, ROMAN, SWISS, SCRIPT
FONT_HEIGHT	FONT_HEIGHT=n The height of the font. If you specify a percentage dimension, the height is scaled relative to the font used in the parts list or the selection list, depending on the control the layout is used for.
FONT_NAME   NOFONT_NAME	FONT_NAME=fontname   NOFONT_NAME The name of the font to use for text. If the font does not exist on the computer, the default font specified in the configuration is used. NOFONT_NAME overrides any inherited settings, and the default font name is used.
FONT_PITCH   NOFONT_PITCH	FONT_PITCH=pitch The font pitch. The font pitch determines whether character widths are all the same or can vary. Possible values are: FIXED, VARIABLE NOFONT_PITCH overrides any inherited settings, and the default font pitch is used.

FONT_WIDTH	FONT_WIDTH=n The width of the font. If you specify a percentage dimension, the width is relative to the default width of the font.
ITALIC   NOITALIC	ITALIC   NOITALIC Sets text to be italicized. NOITALIC overrides this setting.
STRIKEOUT   NOSTRIKEOUT	STRIKEOUT   NOSTRIKEOUT Sets text to display with a strikeout line through it. NOSTRIKEOUT overrides this setting.
UNDERLINE   NOUNDERLINE	UNDERLINE   NOUNDERLINE Sets text to be underlined. NOUNDERLINE overrides this setting.

#### 9.4.2.3.1.2 Font Weights

Font weight attributes control the weight of text. Most fonts support font weights, and a font may have a default weight. To set the font weight for text, specify a font weight attribute in a tag.

#### 9.4.2.3.1.3 Usage

```
<TAG [ THIN | EXTRALIGHT | LIGHT | NORMAL | MEDIUM | ... ] >
...
</TAG>
```

You can use the following font weight attributes:

- THIN
- EXTRALIGHT
- LIGHT
- NORMAL
- MEDIUM
- SEMIBOLD
- BOLD
- EXTRABOLD
- HEAVY



You can use only one font weight attribute on a tag. Child tags inherit font weight attributes.

### 9.4.3 FORMAT Tag

The FORMAT tag defines a single format section to display as a header, footer, or body section. Use the NAME attribute to specify what part of the layout the format applies to.

STATUS	SECURITY LEVEL	DOCUMENT ID	REV.	LANG.	PAGE
Approved	Public		A	en	99/113

The table below describes the NAME attribute for each part of the layout.

Layout Part	NAME Attribute
Parts List Headers	LIST_HEADER
Parts List Footers	LIST_FOOTER
Parts List Body Entries	The first unnamed format in the layout. This format should also include headings for the parts list entries.
Parts List Comment Entries	COMMENT
Picture Headers	PIC_HEADER
Picture Footers	PIC_FOOTER
Picture Callout Tooltips	CALLOUT_TOOLTIP

Specifying attributes in the opening FORMAT tag is optional, and you can specify attributes in any order. Any HEADINGS, ROW, and CELL tags in the format section inherit the attributes that you define in the FORMAT tag.

For example, if you set a border attribute on a FORMAT tag, all rows and cells in the format section inherit the border attributes. However, you can override inherited attributes for a tag by specifying different attributes.

#### 9.4.3.1.1 Usage

```
<FORMAT attribute='value'....>
  [
    <HEADINGS>....
      [
        <ROW>...
      ]
    </HEADINGS>
    <ROW>...
    <ROW>...
  ]
</LAYOUT>
```

Typically, a format section contains one or more rows, and each row contains a number of cells. If you specify two rows in a format, each with a different number of cells, rows will not be the same width.

Each format section uses its own column settings. These column settings are shared by the rows and cells in the format section. Unless you specify otherwise, column widths are calculated to fit the longest text string in the column.

You can use different formats to display different entries in a parts list. In this case, each format individually calculates column widths. If you want entries to use the same column widths, use the CLASS attribute to force all formats in a list to calculate column widths in the same way.

#### 9.4.3.2 FORMAT Tag Attributes

The table below describes the attributes for the FORMAT tag.

STATUS	SECURITY LEVEL	DOCUMENT ID	REV.	LANG.	PAGE
Approved	Public		A	en	100/113

Attribute	Usage and Description
NAME	<p>NAME=format_name</p> <p>The name of the format. If you assign a format to entries with the CLASS attribute, format_name is used to identify the format class.</p> <p>If you do not specify a name, the format is used as the default body and headings format.</p>
CLASS	<p>CLASS=class_name</p> <p>The name of the format class. Any formats that use the same class_name in a parts list calculate column widths in the same way.</p> <p>If you do not specify a class name, the format calculates column widths only for entries that use the same format.</p>
DESCRIPTION	<p>DESCRIPTION=description</p> <p>The window title or panel title where the layout is used.</p>
ENTRYGAP   NOENTRYGAP	<p>ENTRYGAP[=n]   NOENTRYGAP</p> <p>The distance between adjacent entries in the parts list. If a vertical RULE attribute is defined, the line extends through the entry gap but any vertical BORDER attributes do not.</p> <p>The entry gap distance is divided equally between the bottom and top of the entry.</p> <p>If you specify an entry gap dimension of 0 or NOENTRYGAP, then the bottom border or rule draws over the top of the following entry.</p> <p>Specify a dimension to set the size of the entry gap. If you do not specify a dimension, the entry gap is 1 pixel wide.</p>
FORMATEXPAND   NOFORMATEXPAND	<p>FORMATEXPAND   NOFORMATEXPAND</p> <p>FORMATEXPAND sets the format to evenly expand all columns that can expand to fill the screen. In a print layout, the format expands to fill the printable area regardless of the size and orientation of the paper.</p> <p>NOFORMATEXPAND sets the format to calculate column width based on the longest text string in a column.</p> <p>NOFORMATEXPAND is the default behavior.</p>

HIDEREPEATINGITEMIDS   NOHIDEREPEATINGITEMIDS	HIDEREPEATINGITEMIDS   NOHIDEREPEATINGITEMIDS HIDEREPEATINGITEMIDS sets the format to hide any entry in the parts list with an item ID that is the same as the preceding entry. NOHIDEREPEATINGITEMIDS sets the format to show all item IDs. HIDEREPEATINGITEMIDS is the default behavior.
NODEFAULTNOTEICONCOLUMN	NODEFAULTNOTEICONCOLUMN Sets the format to hide the note icon column in the parts list.

#### 9.4.4 HEADINGS Tag

The HEADINGS tag defines the column headings for the body section of the parts list. The first unnamed format is used to display the body section. If this format does not define any headings, then no column headings are displayed. A heading can have any number of row tags, and each row tag can have any number of child tags.

Footers and headers cannot have headings. Typically a HEADINGS tag does not have attributes, but it can have borders and rule attributes. Headings share column properties with the body section as long as the body section belongs to the unnamed format.

##### 9.4.4.1.1 Usage

```
<HEADINGS>
  [
    <ROW>...
    <ROW>...
  ]
</HEADINGS>
```

#### 9.4.5 ROW Tag

The ROW tag defines a row in a header, footer, headings, or body section. The ROW tag is the child of a FORMAT tag or a HEADINGS tag, and it can contain any number of CELL tags.

The order in which you nest cells within a ROW tag determines the order of cells onscreen or when printed. The ROW tag inherits attributes from the parent tag. However, you can override these attributes in the ROW tag.

##### 9.4.5.1.1 Usage

```
<ROW>
  [
    <CELL>...
    <CELL>...
  ]
</ROW>
```

##### 9.4.5.2 ROW Tag Attributes

The table below describes the attributes for the ROW tag.

STATUS Approved	SECURITY LEVEL Public	DOCUMENT ID	REV. A	LANG. en	PAGE 102/113
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Attribute	Usage and Description
ROWCOLLAPSE   NOROWCOLLAPSE	ROWCOLLAPSE   NOROWCOLLAPSE ROWCOLLAPSE sets the row to hide if all of its cells are empty. Any borders are hidden, but rules are shown. NOROWCOLLAPSE sets the row to remain visible even if all of its cells are empty.
ROWGAP   NOROWGAP	ROWGAP[=n]   NOROWGAP The amount of space between adjacent rows. This attribute differs from ENTRYGAP because a single entry can have more than one row. The specified dimension is divided evenly between the top and bottom of the row. NOROWGAP overrides any inherited values, and no gap appears between rows.

#### 9.4.6 CELL Tag

The CELL tag defines an area within a row that displays text. The CELL tag inherits the attributes of its parent row.

Cells can span columns. They share the column attributes (such as width) of cells in the same column in other rows. They also share the height attributes of other cells in the same row.

##### 9.4.6.1.1 Usage

```
<CELL>
  [
    <FIELD>...
    <LIST>...
    <BOOKFIELD>...
    <PICTURE>...
    <PICTUREFIELD>...
    <VALUE>...
    <TABLE>...
    "Static Text"
  ]
</CELL>
```

##### 9.4.6.2 CELL Tag Attributes

The table below describes the attributes for the CELL tag.

Attribute	Usage and Description
ALIGN	ALIGN= LEFT   CENTER   RIGHT The alignment of cell contents. Possible values are: LEFT, CENTER, RIGHT The default alignment is LEFT.

BLANK   NOBLANK	<p>BLANK   NOBLANK</p> <p>BLANK sets the cell to appear blank. The cell can have contents that are used to calculate shared cell properties, such as height and width. However, the cell contents do not appear onscreen or when printed.</p> <p>Use blank cells to affected the contents of shared cells without displaying information.</p>
COLGAP   NOCOLGAP	<p>COLGAP[=n]   NOCOLGAP</p> <p>The space between adjacent columns. The specified dimension is divided evenly between the left and right sides of the column.</p>
COLSPAN	<p>COLSPAN=n</p> <p>The number of columns (counting from left to right) that a cell spans. The specified dimension must be positive.</p>
COLUMNCOLLAPSE   NOCOLUMNCOLLAPSE	<p>COLUMNCOLLAPSE   NOCOLUMNCOLLAPSE</p> <p>COLUMNCOLLAPSE sets the column to hide if all of its cells are empty. Any borders are hidden, but rules are shown.</p> <p>NOCOLUMNCOLLAPSE sets the column to remain visible even if all of its cells are empty.</p>
DECIMAL_ALIGN   NODECIMAL_ALIGN	<p>DECIMAL_ALIGN[=character]   NODECIMAL_ALIGN</p> <p>The character used to align all cells in the column. For example, if you specify a hyphen (-), all cells in the column align hyphens in the same position. If you do not specify a decimal align character, the first non-numeric, non-space character is used.</p> <p>A cell cannot have decimal alignment and wrap at the same time. If both attributes are specified, cell contents wraps and is not aligned.</p> <p>NODECIMAL_ALIGN overrides any inherited values, and cells are not aligned.</p>
EXPAND   NOEXPAND	<p>EXPAND   NOEXPAND</p> <p>EXPAND sets a cell to be expandable, and any excess width is divided equally among columns.</p> <p>NOEXPAND sets a cell to have a fixed width.</p> <p>If one cell in a column expands, it forces other cells in the column to expand to the same width. If a format is set to EXPAND and all cells are set to NOEXPAND, the first cell is forced to expand to accommodate any excess width.</p> <p>This attribute is inherited from rows. EXPAND is the default behavior.</p>



FIRST_ONLY   NOFIRST_ONLY	<p>FIRST_ONLY   NOFIRST_ONLY</p> <p>FIRST_ONLY sets the first instance of a cell to displays its contents. All cells below the first cell onscreen or on a printed sheet are blank.</p> <p>NOFIRST_ONLY sets a cell to always display its contents.</p>
FIXEDWIDTH   NOFIXEDWIDTH	<p>FIXED_WIDTH[=n]   NOFIXED_WIDTH</p> <p>The width of the cell. The width of the cell is not less than the specified dimension but it may be greater if another cell in the column forces the column to expand.</p>
INDENT   NOINDENT	<p>INDENT[=n]   NOINDENT</p> <p>The width of the first line or hanging indent. A positive dimension specifies a first line indent. A negative dimension specifies a hanging indent.</p> <p>NOINDENT overrides any inherited values, and the first line is not indented.</p>
LEVEL_INDENT   NOLEVEL_INDENT	<p>LEVEL_INDENT[=text]   NOLEVEL_INDENT</p> <p>The string or character that is used to indent parts that are part of an assembly.</p> <p>For example, if you specify a hyphen (-) for text, then a hyphen is added to the start of the cell contents.</p>
MAXLINES   NOMAXLINES	<p>MAXLINES[=n]   NOMAXLINES</p> <p>The maximum number of lines the content of a cell can wrap across. (This attribute only affects cells that can wrap content.)</p> <p>NOMAXLINES sets a cell to wrap across as many lines as needed to display content.</p>
MAXWIDTH   NOMAXWIDTH	<p>MAXWIDTH[=n]   NOMAXWIDTH</p> <p>The maximum width of a cell. The width of the cell is not greater than the specified dimension, but it may be less. A cell can exceed its maximum width if another cell in the column forces the column to expand.</p> <p>NOMAXWIDTH sets the cell to expand as wide as needed.</p>
MINWIDTH   NOMINWIDTH	<p>MINWIDTH[=n]   NOMINWIDTH</p> <p>The minimum width of a cell. The width of the cell is not less than the specified dimension, but it may be greater.</p> <p>NOMINWIDTH sets the cell to use as small a width as possible.</p>

ROWSPAN	<p>ROWSPAN=n</p> <p>The number of rows (counting from top to bottom) that a cell spans. The specified dimension must be positive.</p>
TEXT_FORMAT	<p>TEXT_FORMAT=C   D   F   N   0</p> <p>Sets the text format for the cell. Use this attribute to format currency and numbers in a cell. This attribute is available only to version 5 viewers and above. The possible values are described below:</p> <p>C - Currency. A currency symbol is placed before to the number, and the number is limited to two decimal places. Negative values appear in parentheses. For example:</p> <ul style="list-style-type: none"> <li>• 2.7 appears as \$2.70</li> <li>• -2.7 appears as (\$2.70)</li> </ul> <p>Dn - Decimal. Numbers appear in decimal format, where n is the minimum number of characters to use. For example:</p> <ul style="list-style-type: none"> <li>• If you specify D4 as the text format value, 5 appears as 0005</li> </ul> <p>Fn - Fixed point. Numbers appear in fixed point format, where n is the number of digits to the right of the decimal point. For example:</p> <ul style="list-style-type: none"> <li>• If you specify F3 as the text format value, 5 appears as 5.000</li> </ul> <p>N - Number. Text is displayed as a number, and commas and decimal places are automatically inserted. For example:</p> <ul style="list-style-type: none"> <li>• 10000 appears as 10,000.00</li> </ul> <p>0 or blank - Text is not formatted</p>
VALIGN	<p>VALIGN= TOP   MID   BOTTOM</p> <p>The vertical alignment of cell contents. Possible values are: TOP, MID, BOTTOM</p> <p>The default behavior is TOP.</p>

WRAP   NOWRAP	<p>WRAP[=n]   NOWRAP</p> <p>WRAP sets a cell to wrap content, where n is the maximum length a line can be before it wraps to the next line. If you do not specify a dimension, the minimum line length is the width of the largest word. (A word is a series of characters with white space before and after.)</p> <p>NOWRAP sets a cell to not wrap content. The cell width expands to accommodate all content on one line.</p> <p>A cell cannot have decimal alignment and wrap at the same time. If both attributes are specified, cell contents wraps and is not aligned.</p>
---------------	---

### 9.4.6.3 Static Text

Cells can contain static text. Static text does not change, and any text you enter in the cell remains the same for all entries.

You can also embed icons in text using character codes. The tables below describe the character codes you can use. (Character codes are case sensitive.)

Code	\!	\-	\.	\>	\<	\0	\1	\2	\3	\4	\5	\6	\7	\8	\9
Icon	!	-	.	▶	◀	□	◆	⊗	■	▼	△	☆	★	⊙	◻

Code	\A	\D	\H	\S	\T	\l	\s	\u	\w	\	\
Icon	*	◇	<b>HCI</b>	🔄	✓	▶	🔧	□	▲	(space)	(larger space)

### 9.4.6.4 FIELD Tag

Use the FIELD tag to dynamically populate a layout from parts list information. Only parts lists can contain field values. Selection lists cannot display field values.

You can use publisher defined fields that are built into LinkOne books, or you can use pre-defined fields.

#### 9.4.6.4.1 Usage

<FIELD>field-name</FIELD>

The table below describes the pre-defined parts list entry fields.

Field	Description
Link Icon	Displays a link column. If the entry is a link, the link icon appears in the link column.

Selection Icon	Displays a selection check box that indicates if the part is in the selection list.
Item ID	Displays the item ID of the entry.
Part Number	Displays the part number of the entry.
Description	Displays the description of the entry.
Alternative	Displays the alternative description of the entry.
Weight	Displays the weight of the entry.
Units	Displays the units of the entry.
Link Publisher	If the entry is a link, displays the publisher code of the link.
Link Book	If the entry is a link, displays the book code of the link.
Link Reference	If the entry is a link, displays the page reference of the link.
Link Item	If the entry is a link, displays the item ID of the link.
Link PageNo	If the entry is a link, displays the page number of the link.
Options	Displays the option codes of the entry.
Quantity	Displays the quantity of the entry.
Note Icon	Displays a note icon if the entry has notes associated with it.

#### 9.4.6.5 LISTFIELD Tag

Use the LISTFIELD tag to display the contents of a list field for the currently displayed page.

You can use publisher defined fields that are built into LinkOne books, or you can use pre-defined fields.

##### 9.4.6.5.1.1 Usage

`<LISTFIELD>listfield-name</LISTFIELD>`

The table below describes the pre-defined list fields.

Field	Description
Title	Displays the title of the currently displayed parts list.

Page Reference	Displays the page reference of the currently displayed page.
Page Number	Displays the page number of the currently displayed page.

#### 9.4.6.6 BOOKFIELD Tag

Use the BOOKFIELD tag to display information from book fields.

You can use publisher defined fields that are built into LinkOne books, or you can use pre-defined fields.

##### 9.4.6.6.1.1 Usage

```
<BOOKFIELD>bookfield-name</BOOKFIELD>
```

The table below describes the pre-defined book list fields.

Field	Description
Publisher Code	Displays the publisher code of the current book.
Publisher Description	Displays the publisher description of the current book.
Book Code	Displays the book code of the current book.
Title	Displays the book title of the current book.

#### 9.4.6.7 PICTURE Tag

Use the PICTURE tag to embed a picture inside the part list. You can only embed a picture when you publish the book using the LinkOne publishing system.

You identify the picture to use with a literal text field that maps to a field, list field, book field, value, or the file name (without extension) of the picture file.

The pictures are included in the book building process as additional graphics.

##### 9.4.6.7.1.1 Usage

```
<PICTURE>
  [
    <FIELD>...
    <BOOKFIELD>...
    <VALUE>...
    "my_picture"
  ]
</CELL>
```

##### 9.4.6.7.2 PICTURE Tag Attributes

The table below describes the attributes for the PICTURE tag.

STATUS	SECURITY LEVEL	DOCUMENT ID	REV.	LANG.	PAGE
Approved	Public		A	en	109/113

Attribute	Usage and Description
WIDTH	WIDTH=n The width of the picture where n is a dimension. If you do not specify a width but you do specify a height, width is scaled using the height attribute.
HEIGHT	HEIGHT=n The height of the picture where n is a dimension. If you do not specify a height but you do specify a width, height is scaled using the width attribute.



If you do not specify a width or height, the picture is scaled to fit within the cell. If the NOFORMATEXPAND attribute is set, the picture appears at the original size of the graphic.

#### 9.4.6.8 PICTUREFIELD Tag

Use the PICTUREFIELD tag to display the contents of a picture field for the currently displayed picture.

You can use publisher defined fields that are built into LinkOne books, or you can use pre-defined fields.

##### Usage

`<PICTUREFIELD>picturefield-name</PICTUREFIELD>`

The table below describes the pre-defined book list fields.

Field	Description
Title	Displays the title of the currently displayed picture.
Picture Number	Displays the picture number of the current picture.

#### 9.4.6.9 VALUE Tag

Use the VALUE tag to display the contents of a value note that is available from the currently displayed parts list page.

You can use any accessible value note or pre-defined values.

##### 9.4.6.9.1 Usage

`<VALUE>value-tag-name</VALUE>`

The table below describes the pre-defined book list fields.

Field	Description
PUB	The publisher code of the current book.

STATUS	SECURITY LEVEL	DOCUMENT ID	REV.	LANG.	PAGE
Approved	Public		A	en	110/113

BOOK	The book code of the current book.
REF	The page reference of the current page.
VISIBLEREF	The reference of the currently open page.
ITEM	The item ID of the currently selected entry in the parts list.
VISIBLEITEM	The visible item ID of the currently selected entry in the parts list.
PAGE	The page number of the currently open page.
VISIBLEPAGE	The visible page number of the currently open page.
PARTNO	The part number of the currently selected entry in the parts list.
PARTDESCR	The part description of the currently selected entry in the parts list.
FILENAME	The file name of the currently open page.
BOOKLOCN	The physical path to the location of the book on the hard drive.
LIST_TITLE	The title of the currently displayed parts list.
BOOK_TITLE	The title of the currently open book.
PICTURE_TITLE	The title of the currently displayed picture.
VIEW	The picture number of the currently viewed picture.
DATE	The current date.
TIME	The current time.
OPTION_FILTERS	The current option filters.
LIST_SHEETNO	The sheet number of the current parts list being printed.
LIST_SHEETNO_0	The zero-based sheet number of the current parts list being printed.
PIC_SHEETNO	The picture number of the current picture being printed.
PIC_SHEETNO_0	The zero-based picture number of the current picture being printed.
PRINT_SHEETNO	The sheet number of the current page being printed.

STATUS	SECURITY LEVEL	DOCUMENT ID	REV.	LANG.	PAGE
Approved	Public		A	en	111/113

PRINT_SHEETNO_0	The zero-based sheet number of the current page being printed.
-----------------	--

#### 9.4.6.10 TABLE Tag

Use the TABLE tag to define tables within a cell. You can also define a table within the cell of another table.

The size of the contents of a table affect the size of the cell that contains the table and also all cells in the same column.

##### 9.4.6.10.1.1 Usage

```
<TABLE>
```

```
[
```

```
<ROW>
```

```
<CELL>...
```

```
<CELL>...
```

```
</ROW>
```

```
<ROW>
```

```
....
```

```
</ROW>
```

```
]
```

```
</TABLE>
```



## 10 Revisions

Rev.	Page (P) Chapt. (C)	Description	Date Dept./Init.

STATUS	SECURITY LEVEL	DOCUMENT ID	REV.	LANG.	PAGE
Approved	Public		A	en	113/113