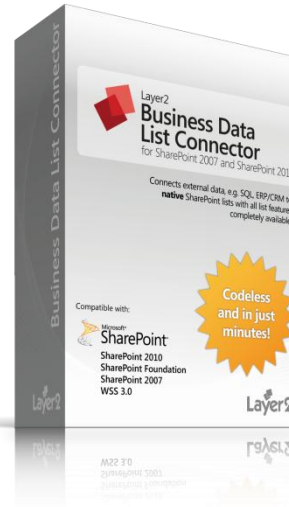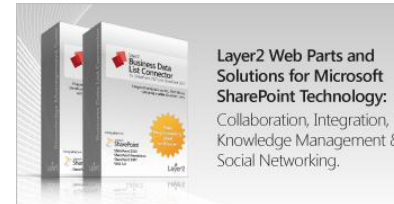# Layer2 Business Data List Connector for SharePoint (BDLC)

Who is Layer2?

- As a Microsoft Gold Certified Partner and ISV based in Hamburg (Germany), Layer2 is one of the leading providers of Microsoft SharePoint and Office 365 apps in Europe with a major focus on Data Integration, Collaborative Knowledge Management and Social Networking.

- Layer2 has also been known as a reliable partner to customers in Central Europe, offering additional consulting and services in the fields of SharePoint, .NET programming and IT infrastructure for more than 20 years.
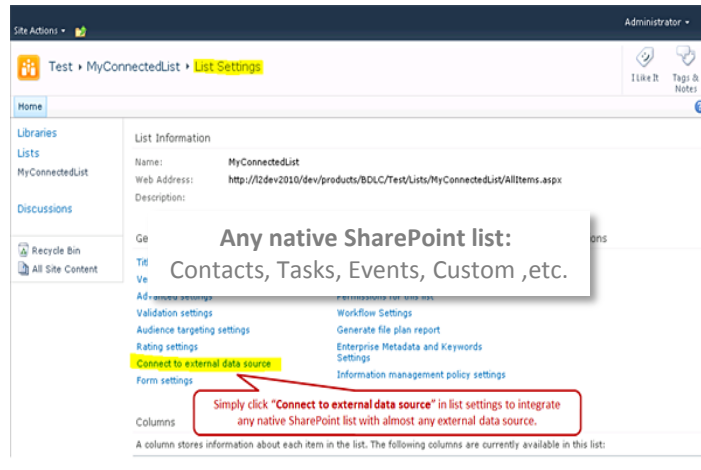
What is the SharePoint Business Data List Connector?

- The SharePoint Business Data List Connector (BDLC) connects *native* SharePoint lists (no Web Parts, no BDC / BCS) directly to almost any external data sources, simply in the list settings dialog in just minutes, codeless and bi-directional.

- *All* SharePoint list features are available as usual, e.g. search, alerts and workflows, to take business actions in SharePoint, when external data records are changed.

- The BDLC simplifies your SharePoint architecture, overcomes limitations and solves many issues that still exists with SharePoint out-of-the-box BDC and BCS today.

- BDLC requires SharePoint on-premise to install. If you are looking for a cloud-based solution, please try the Layer2 Cloud Connector product.
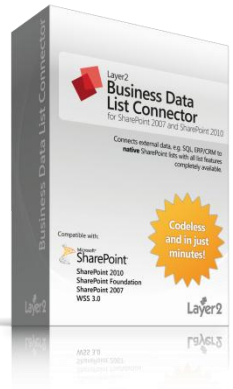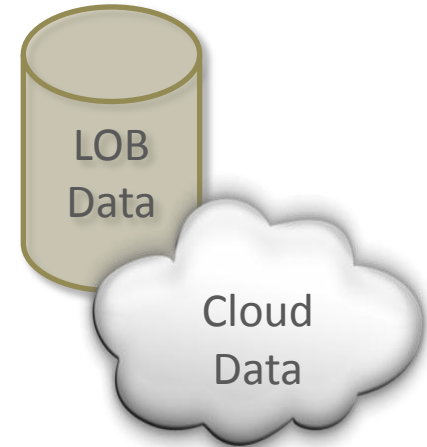
How does the SharePoint Business Data List Connector work?

On demand or scheduled
Inserts, Updates, Deletes*

Any native SharePoint list:
Contacts, Tasks, Events, Custom ,etc.

Real-Time Inserts,
Updates, Deletes*

LOB Data

Cloud Data

* If supported by provider / driver and access rights.

What can be connected to SharePoint via BDLC?

- **Databases** with existing ODBC / OLEDB / OData or other .NET based drivers, e.g. SQL Server, SQL Azure, Oracle, IBM DB2, Informix, AS/400, MySQL and many more.
- **Files** like Microsoft Office Excel, Access, XML, CSV or other text files etc.
- **Applications** like Exchange, Active Directory, SharePoint, etc.
- **ERP/CRM/DMS/CMS systems** like Navision, SAP, MS Dynamics, etc.
- **Cloud-based systems** like Salesforce, SharePoint Online, CRM Online, Google, Twitter, Facebook, any RSS or other XML-based web requests, etc.
- **General Web Services**, .NET or COM+ objects via 3rd party gateways.

BDLC for SharePoint - Why we made it?

- SharePoint out-of-the-box solutions for external data integration such as the Business Data Catalog (BDC, 2007) and BCS (2010 / 2013) are not available for all SharePoint editions and they have limitations. The BDLC works with all SharePoint on-premise editions and has no limitations compared to native lists. You have views, metadata, alerts, workflows as usual. No problems with search, forms or 3rd party extensions .

- BDC / BCS are difficult to configure. Tools, XML, customizing or even programming are required. The BDLC is easily configured in the list settings. Every admin can do it.

- BDC / BCS only displays the external data inside SharePoint UI. That causes not only limitations, but also a complicated architecture with real-time user access to all external sources at any page call and possibly licensing issues as well. With BDLC users access native SharePoint lists only with high performance and availability.

- SharePoint users are familiar with lists. Lists are the common way to work with data in SharePoint. Most SharePoint features are based on lists, e.g. to take data offline.

- BDC / BCS is difficult to upgrade. BDLC lists are very easy to migrate from SharePoint 2007 to 2010 / 2013 – no changes at all.

BDLC for SharePoint – Installation & Activation

- Simply use the installer provided for new installation or update / upgrade.

- Select your SharePoint version in distribution (2007/2010/2013 directory in ZIP).

- Run "as admin" if required.

- In case of farm installation please install on CA first, SharePoint deploys automatically to the selected web applications WFE & App servers.

- Normally the BDLC feature is automatically activated on SharePoint Site Collection level as a Site Collection feature (not site level, not in CA)

- You can deactivate or uninstall at any time.

Site Collection Administration
Search settings
Search scopes
Search keywords
FAST Search keywords
FAST Search site promotion and demotion
FAST Search user context
Recycle bin
Site collection features
Site hierarchy
Site collection audit settings
Audit log reports
Portal site connection
Site collection policies
Content type publishing
SharePoint Designer Settings
Visual Upgrade
Help settings

SharePoint Business Data List Connector by Layer2
Adds a new list definition to create a Business Data List Connector for integration of external business data.

Deactivate   **Active**

Layer2

BDLC for SharePoint – How to Connect a List?

- Create a new list of any type, e.g. contacts, or use an existing one.

- Goto List Settings > General Settings.

- Select „Connect to External Data Source" to open the "BDLC List Settings Dialog" and configure your data source for the current list.

- If this entry is not there, the solution is not installed or not activated as a feature of the current site collection.
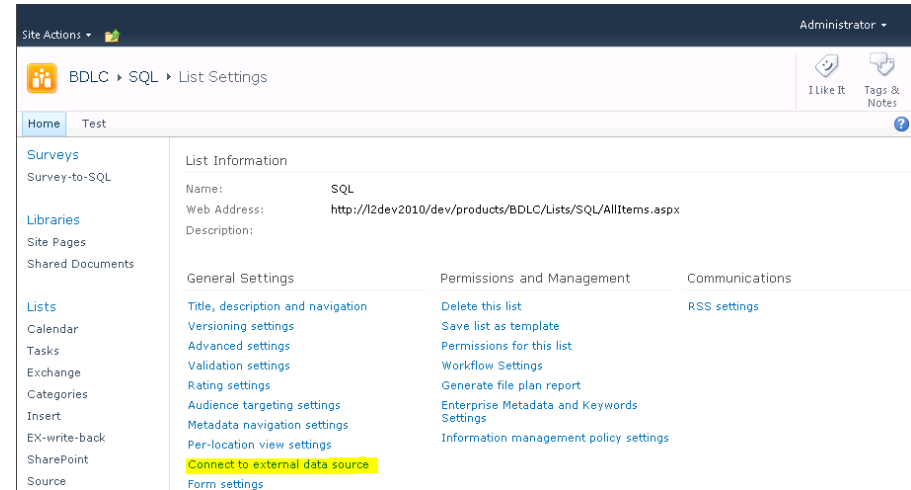
BDLC for SharePoint – List Settings

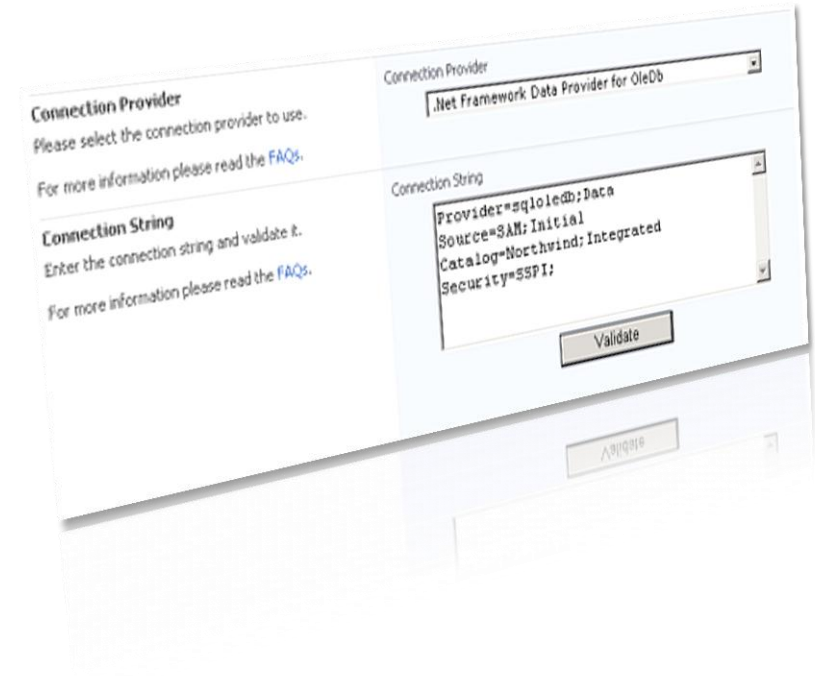To connect to your external data source:

- Select your "Connection Provider".

- Enter the „Connection String" and validate it.

- Enter the „Query String" and validate it.

- Enter the primary key(s) - if any.

- Create the list structure or add additional columns with one click on „Add Columns".

- Check mapping of external fields with SharePoint columns. Modify column types and names.

- Update the data with one click on „Update".

- Enable background update, if required and set options like schedule interval.

- Enable write-back, if required.

- See below for more information about these steps.
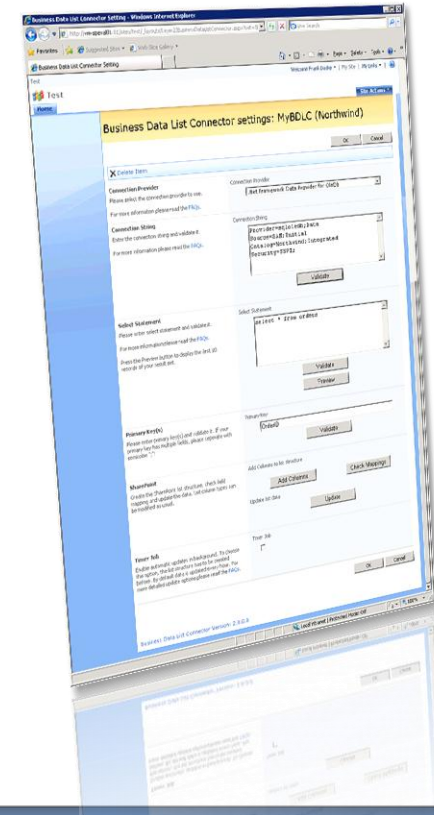
BDLC for SharePoint – Connection Provider
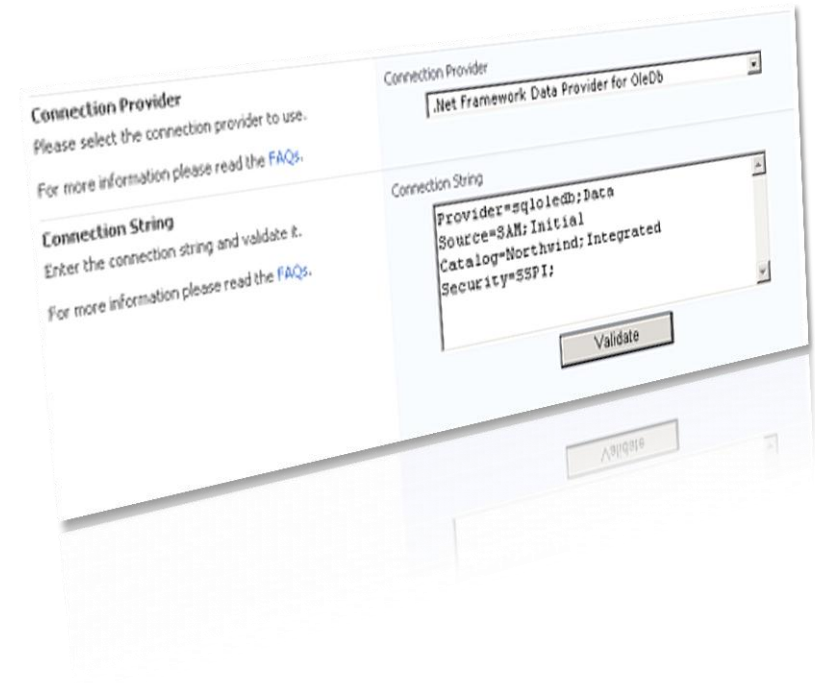
Please select your Connection Provider:

- You'll find a list of all installed providers and drivers **at your server**.

- You have to install your driver, if not present, e.g. Oracle driver to access Oracle database.

- You can use universal providers, e.g. ODBC, OLEDB, OData etc.

- BDLC out-of-the-box comes with additional providers for RSS, XML, Odata and SharePoint. See below for a description of these providers.

- Just ask your data source vendor for available providers or take a look at our FAQs.

BDLC for SharePoint – Connection String

Please enter your Connection String:

- Connection strings are not BDLC specific and available for virtually any external data source.

- To find the connection string for your data source see our FAQs, ask your vendor or take a look at www.connectionstrings.com

- Contact sales@layer2.de for any help.

- See below for Layer2 provider specifications.

- Validate your Connection String.

- Please note that any error message at this point directly comes from the driver / provider selected - mostly not related to the BDLC product.

BDLC for SharePoint – Select Statement

- The select statement queries your external data set via connection string.

- Select statements or queries are not BDLC specific and available for virtually any external data source

- To find the select string or query for your data source see our FAQs or ask your vendor

- Please validate your query. Please note that any error message at this point directly comes from the driver / provider selected - mostly not related to the BDLC product.

- Use the preview feature to get an impression.

- See below for Layer2 provider specifications.

- You can map the fields to existing columns using aliases (e.g. select MyField as Title)

- Your select statement should contain a primary key (one or more unique columns) for smooth update and to enable write-back.

Select Statement

Please enter select statement and validate it.

For more information please read the FAQs.

Press the Preview button to display the first 10 records of your result set.

Select Statement

`SELECT TOP 50 * FROM dbo.BELEGP`

Validate

Preview

BDLC for SharePoint – Primary Key

- In most cases your external data has one or more primary key(s).

- If a primary key is available, then changed data is updated only. Otherwise all items are deleted and re-inserted, a possible performance issue.

- The fields must not be native primary keys – but unique in column.

- For more information about possible primary keys / field names please use data preview and check field mappings.

- The primary key is automatically mapped to the Title field if it is not mapped otherwise, e.g. by using "Select myField as Title …" .

Primary Key(s)

Please enter primary key(s) and validate it. If your primary key has multiple fields, please seperate with semicolon ";".

Primary Key

CategoryID

Validate

Layer2

BDLC for SharePoint – Create List Structure

- To create the list structure required to host your external data, please press "Add Columns".

- The fields of the result set of the given select statement are created automatically as SharePoint columns and mapped **by the *internal* column names**.

- Please check mapping if unsure.

- You can rename any SharePoint column title manually later on as usual.

- You can modify the column field types if required, e.g. single line text to multi-line.

- You can create or delete column fields as usual in SharePoint if required, e.g. to add custom SharePoint-only data or other attachments.

BDLC for SharePoint – First Update

- To update the data in your SharePoint list with your external data first time, please press "Update".

- Please note that the first update can take some time, depending on amount of data and configuration. Take care about information or error messages.

- After first update is finished successfully press update again. No items should be changed now (if the given primary key works as expected).

- See below about how further updates can be made on-demand or automatically.

Layer2

BDLC for SharePoint – Background Update

- You can optionally enable "Background Update" to schedule the SharePoint list updates. Please keep in mind, that data source updates are real-time in any case (if write-back enabled).

- The list updates are done automatically by a timer job, one time per hour by default.

- You can modify this interval. It is limited by the timer job interval (you can adjust in CA, 10 minutes by default). Please note the duration time depends on amount of data, amount of changes, and configuration.

- If primary key(s) are given, updates can be done very fast.

BDLC for SharePoint –Update on Demand

- You can optionally update the SharePoint list on demand. Please keep in mind, that data source updates are real-time in any case (if write-back enabled).

- You can use the Action Menu (SharePoint 2007) or the Ribbon (SharePoint 2010/2013) to start a list update.

- You can update the list per URL via <siteurl>/_layouts/layer2/bdlcupdate.aspx?list=<guid>&source=<Url> where <siteurl> is the url of the site that hosts the BDLC list with <guid> (required) , <guid> is the SharePoint BDLC list guid (required), <Url> is the URL to redirect after update (optionally).

- Developers can use the BDLC API to update the list per workflow or program code. See sample code in distribution.

BDLC for SharePoint –Write-Back

- You can optionally write changes made in the SharePoint list back to data source with "write-back" enabled in BDLC settings, including insert, update, delete.

- Changes are fired immediately to data source when they are committed to the SharePoint list.

- Your provider must support write-back (for example you can't write to a RSS data source).

- Your access rights must allow write-back on the external data source.

- Your query must be updatable (for example most joins are not). A primary key is required at the data source side.

- You can use the SharePoint data sheet list view with write-back enabled without any restrictions.

- Generally full CRUD (Create / Update / Delete) is supported, e.g. for using a SharePoint list as a database front end. Please note that database side calculated primary keys (e.g. ID counter) are not supported. Please use GUIDs on both sides. See FAQs for more information.

Write-back to Datasource (CRUD)

Enables write-back of data changes made in the SharePoint list to the data source with full CRUD (Create/Update/Delete) - if supported by provider and data source used.

Write-back
☐ Enable Write-back
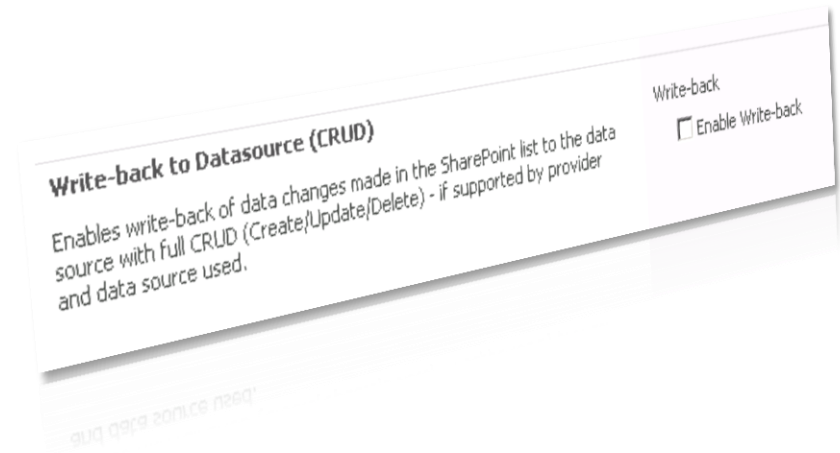
BDLC for SharePoint –Highest Security

- With BDLC your users do not access your external data directly. That gives you the highest security level possible.

- You can hide your connection settings by disable access to list settings for your users by SharePoint access rights settings.

- You can use integrated authentication if supported by provider.

- You can hide the connection string in web.config for WFE servers. If you define a term myConnectionString in your AppSettings section of web.config, you can use web.config:myConnectionString as BDLC connection string.

- With SharePoint 2010 / 2013 you can use the new Secure Store to store connection settings. See FAQs for more.

- Please note that BDLC is proven to be aware against SQL injection by design.

Connection String
securestore:MyTargetApplication

Connection String
securestore:applicationid=MyTargetApplicati
on

Connection String
securestore:applicationid=myTargetApplicati
on;connectionid=connection;userid=Windows
User Name;passwordid=Windows Password

Layer2

BDLC for SharePoint –Highest Performance

- End users do access native SharePoint list data only for highest performance – not the external source.

- For best update performance use as few columns as possible, e.g. no select * from myTable.

- Restrict your result set if possible using where clauses or similar.

- Fast SharePoint batch API is used to commit changes only.

- BDLC is proven to work with up to 100.000 records / items, depending on configuration and data source performance. Please note that the configuration must meet the Microsoft requirements.

- For manual browser-based updates you possibly need to adjust time out settings for web application (see FAQ).

- Background updates are running on application servers for scalability with best performance.

Background Update Settings
☑ Enable Background Update
Interval [min]   60   10 AM   00
                        9/27/2012
Next Run   9/27/2012 9:45:01 AM
Last Run: 0 [s]
Last Duration: Items added: 0, Items deleted: 0, Items updated: 2,
Last Message: Items with errors: 0,
☐ Locked (Please unlock here if required)

Layer2

BDLC for SharePoint –All List Features Available

- A BDLC list simply is a native SharePoint list of any type.
- **ALL list features are available.**
- Views, sorting, filtering, grouping, calculated fields, metadata, tagging ...
- Search with all options as usual.
- Alerts and notifications, RSS, events ...
- Workflows on external data change (!) with SharePoint OOTB, Visio, VS, Nintex etc.
- Additional SharePoint-only columns and attachments.
- Offline availability (e.g. in Outlook).
- Datasheet view, Detail forms, InfoPath, Nintex Forms etc.
- Item context menus.
- Datasheet view, export to Spreadsheet.
- Web services, XML.
- Compatible with all 3rd party add-ons.
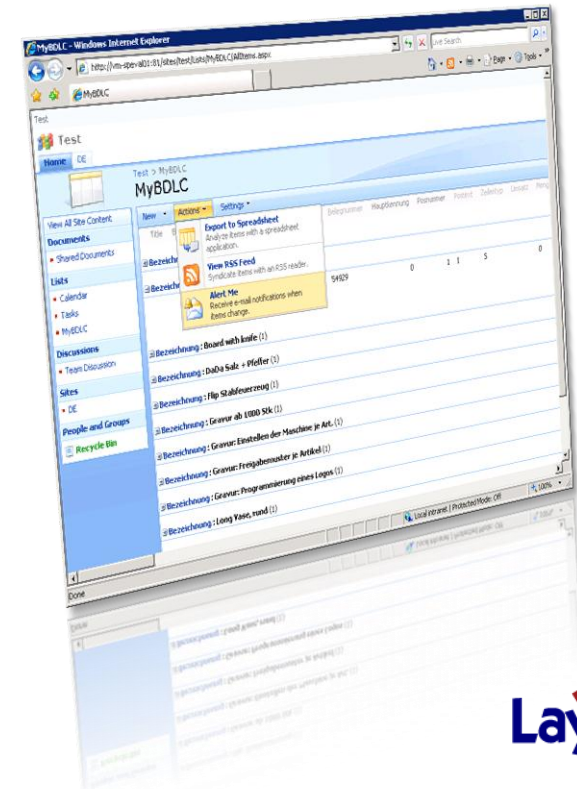
BDLC for SharePoint – What else can you do?

- Save LOB user CAL licenses, e.g. for CRM/ERP, because users don't access the LOB system directly. They can work with the familiar Office interface now.

- Build secure extranets with pre-selected replicated enterprise data for customers or other partners.

- Aggregate feeds right into SharePoint lists, e.g. RSS or Twitter.

- Sync your Office 365 or SharePoint Online cloud-based data with your local SharePoint.

- Include your external data in SharePoint search, Knowledge Management and Social Networking using terms and tags, enterprise metadata, activity feeds to reach your users.

- Provide consistent enterprise data always up-to-date for your users to create lookups, build forms etc. – **before they copy manually**.
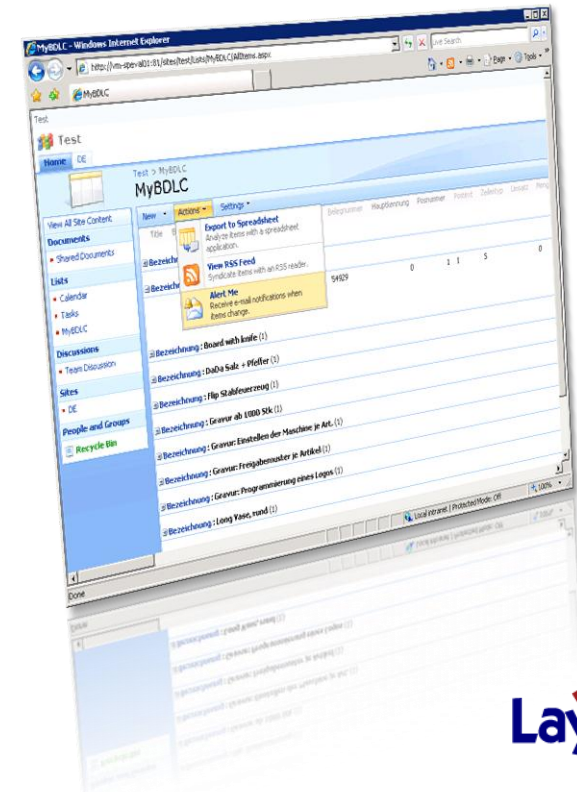
Data Providers

- Connection strings and select statements are not product specific.

- Please consult your vendor about connection string and query syntax for your data source provider.

- You will find a lot of connection strings here: www.connectionstrings.com and in our FAQs.

- See below for a description of the specific Layer2 data providers included in product.
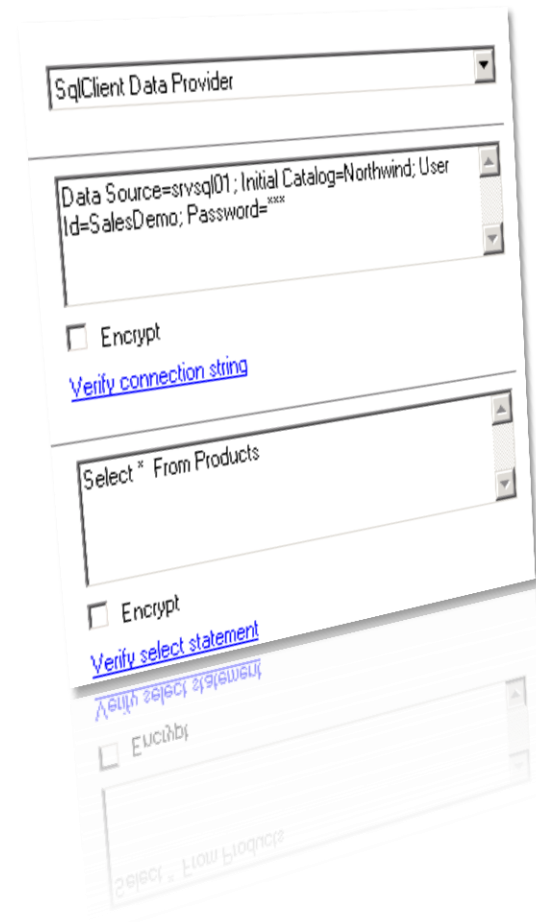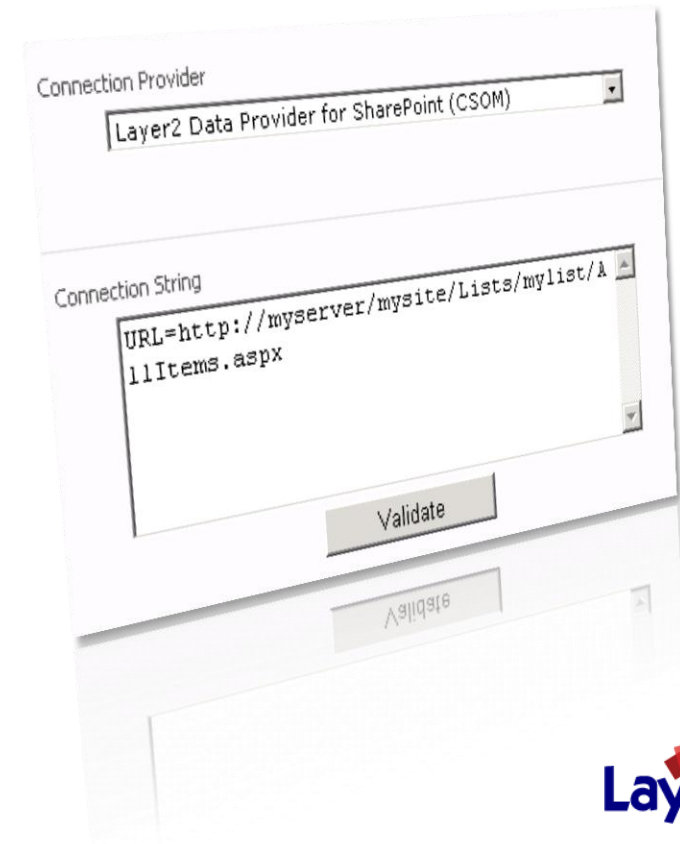
Layer2 Data Provider for RSS Feeds

- Makes it as easy as possible to aggregate RSS Feeds in native SharePoint lists

- URL parameter provides the link to the feed (copy from browser)

- Auth provides authentication method, e.g. Anonymous.

- FeedType = RSS, Atom, RDF

- FeedSource provides an additional field Source. Value can be set in connection string.

- Usual RSS fields are exposed, but any other custom fields as well.

- A "No Delete" option is planned for release to implement feed archives.

- Source code included in distribution as a sample to write your own provider.

Connection Provider

Layer2 Data Provider for RSS Feeds

Connection String

Url=http://www.pressebox.com/rss/flag/sof
tware.rss;
Auth=Anonymous;FeedType=RSS;FeedSource=Pr
essebox

Validate

Layer2

Layer2 Data Provider for SharePoint (CSOM) 1/2

- Connects to other SharePoint lists, on-premise and in the Microsoft cloud with the following parameter:

- **URL** parameter (required) provides the link to the source list. Please copy from browser.

- **Authentication** provides an authentication method, e.g. IntegratedWindows (default), Windows, Office365, IECookie, Anonymous, ADFS, ADFSWindowsIntegrated.

- For **Windows integrated** authentication take care, that all users that use update on demand have access, and / or the Windows Timer Service account (if background update is used).

- For Windows and Office 365 authentication the parameter **user** and **password** are required additionally. Please use the same values as if you would login manually.

- For **IECookie** authentication Cookie Manager is required. See below for more.

- For **ADFS** authentication at Office365 / SharePoint Online the parameter OnlineUser, username and password must be provided.

- For **ADFSWindowsIntegrated** the parameter OnlineUser must be provided.

- **OnlineUser** must be set to the mapped user id used as online id for Office 365 authentication.

Connection Provider

Layer2 Data Provider for SharePoint (CSOM)

Connection String

URL=http://myserver/mysite/Lists/mylist/A
llItems.aspx

Validate

Layer2

Layer2 Data Provider for SharePoint (CSOM) 2/2

- For best performance please use a defined view with the required columns only.

- Select statements are not supported. Please use a view on data source side to select your data.

- There are more options available for more specific requirements. Please see specification in FAQs.

- To access Office 365 and SharePoint Online from inside SharePoint via BDLC / CSOM Web Services required certificates must be in the SharePoint certificate store. See FAQs how to do.

- Contact sales@layer2.de if there are any issues.

Layer2 Data Provider for XML

- Use this provider to query XML based data from file or web request via Xpath and sync uni-directional. Please note that almost any web service can be exposed as XML-based HTTP web request.

- **URL** can be set to the url (best taken from browser) or file path (e.g. C:\myfile.xml)

- **Authentication** can be set to Windows.

- Optionally **user** and **password** can be set.

- Any valid Xpath expression is supported as query. It must return a table-like structure.

- There are more options available for more specific requirements. Please see specification in FAQs.

- Contact sales@layer2.de if there are any issues.

Layer2 Data Provider for OData

- Use this provider to query external data via OData interface and sync uni-directional.

- A common usage for this provider is syncing contact data in MS CRM Online with SharePoint contacts to make it available offline in Outlook.

- **URL:** This is the Service Root URL for the OData source.

- **Collection:** Identifies the resource to be interacted with, e.g. Products.

- **Authentication** can be Anonymous or IECookie.

- Any OData select statement supported.

- There are more options available for more specific requirements. Please see specification in FAQs.

- Contact sales@layer2.de if there are any issues.

Layer2 SharePoint List Provider

- Use this provider to query external SharePoint data from **SharePoint 2007 and WSS 3.0**.

- In all other cases (SharePoint 2010 / 2013, on-premise or cloud-based) please use the new CSOM provider described above.

- **URL:** Complete URL to view (best taken from browser), optionally including parameters.

- **Login:** Optional user name, e.g. mydomain\myuser.

- **Password:** Optional user password.

- There are **more options** available for more specific requirements. Please see specification in FAQs.

- Select statements or other queries are not supported. Please use views instead of.

- You can use ID as primary key (as prefilled).

- Contact sales@layer2.de if there are any issues.

Free Shareware & Licensing

- BDLC can be used as free Shareware with limitations (25 items per list). Full featured 30 days trial license on request.

- BDLC can be licensed per SharePoint WFE & APP server. No user CALs required. One-time fee.

- There is an optional annual Software Assurance for free updates and upgrades per server.

- Several support options, e.g. free or per hour.

- No new installation is required, just placing the license file in feature directory.

- You can order online using any payment procedure you want.

- Contact sales@layer2.de if you have any questions about licensing.

Business Data List Connector for SharePoint 2007 / 2010 / 2013	
License	List price
FREE Shareware Version	$0.00
1 Single Server License #300332176	$1,065.00
1 Annual Software Assurance #300421884	$225.00

Layer2

Layer2 SharePoint Apps –Who runs business with it?

- Layer2 apps are used all over the world in thousands of small, mid-sized and large companies and organizations like The Coca-Cola Company, Bauer Inc, IBM, Deloite, US Defense Department, NATO, United Nations World Food Programme (WFP), Unico Banking Group, Swiss Life AG and many others.

- See www.layer2.de/en/products/ for more customer references.

- **The Layer2 Business Data List Connector is one of the highest ranked SharePoint apps in the US market today:**
http://pinpoint.microsoft.com/en-US/applications/search?q=sharepoint
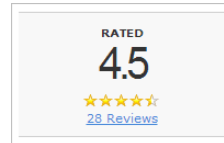
Layer2 Partner Program for Reseller and Implementer

- Completely **cost-free** partner program. No contract required.

- **Partner links** at our product pages. Sales leads will find you as a local partner and will ask for reselling and implementation support.

- **15 - 30% discount** on production licenses to use our solutions in your external customer projects or for resale.

- Place your orders using our **on-line shop system**. Simply enter your partner codes to receive your discounts.

- As a partner you can use our solutions internally, for demonstration or within your intranet, extranet or even Internet as **free NFR** version.

- Premium support level with high priority and direct access to the product development team. Joint development options. Project support, if required.

- Free marketing and sales support, ready to use digital marketing kit including flyers, presentations and evaluation downloads.

Layer2 company profile

A reliable partner in the fields of SharePoint, .NET-programming and IT-Infrastructure since more than **20 years**

- **1991** Business formation as "Cords und Jacobi, EDV-Beratung und IT-Dienstleistungen" in Hamburg, Germany

- 2001 Change of the company's name to "Layer 2 GmbH"

- 2003 Focus on Microsoft Technologies, especially .NET and SharePoint

- 2007 Market entry Austria and Switzerland

- 2008 Microsoft Certified Partner

- 2009 Start of international product marketing

- 2010 Microsoft Gold Certified Partner ISV / Software Competence

- 2011 Microsoft Cloud Accelerate Partner

- 2012 Microsoft Gold Certified Partner Portals and Collaboration

Hamburg

Karlsruhe

Microsoft Partner
Gold Portals and Collaboration
Gold Independent Software Vendor (ISV)

SharePoint

Microsoft **.NET**

Microsoft **Office 365**

Windows Intune

Windows Azure

Microsoft Office Professional Plus

Microsoft Exchange Online

Microsoft SharePoint Online

Microsoft Lync Online

Microsoft Partner Network

Cloud Power

Cloud Accelerate Partner

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