



Layer2 Cloud Connector for SharePoint & Office 365

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About this Presentation



- The Layer2 Cloud Connector was originally developed for Microsoft SharePoint and Office 365 external data integration and synchronization – but it can also be used to *directly* connect almost any other systems and applications.
- This presentation is highly focussed to general integration of SharePoint, Office 365 and OneDrive for Business.
- Another presentation is available specifically for the synchronization of local files with SharePoint / Office 365 / OneDrive.
- There are other presentations available about using the Cloud Connector to directly connect various other systems and applications directly.



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, Office 365 and Azure apps in Europe with a major focus on Data Integration, Collaborative Knowledge Management, Social Networking and Cloud.
- Layer 2 has also been known as a reliable partner to customers in Central Europe, offering consulting and services in the fields of SharePoint, .NET programming and IT infrastructure for more than 20 years.

Microsoft Partner

Gold Application Development
Gold Collaboration and Content
Gold Small Business
Cloud Accelerate
Silver Volume Licensing
Silver Midmarket Solution Provider

SharePoint in the cloud – key customer pain points

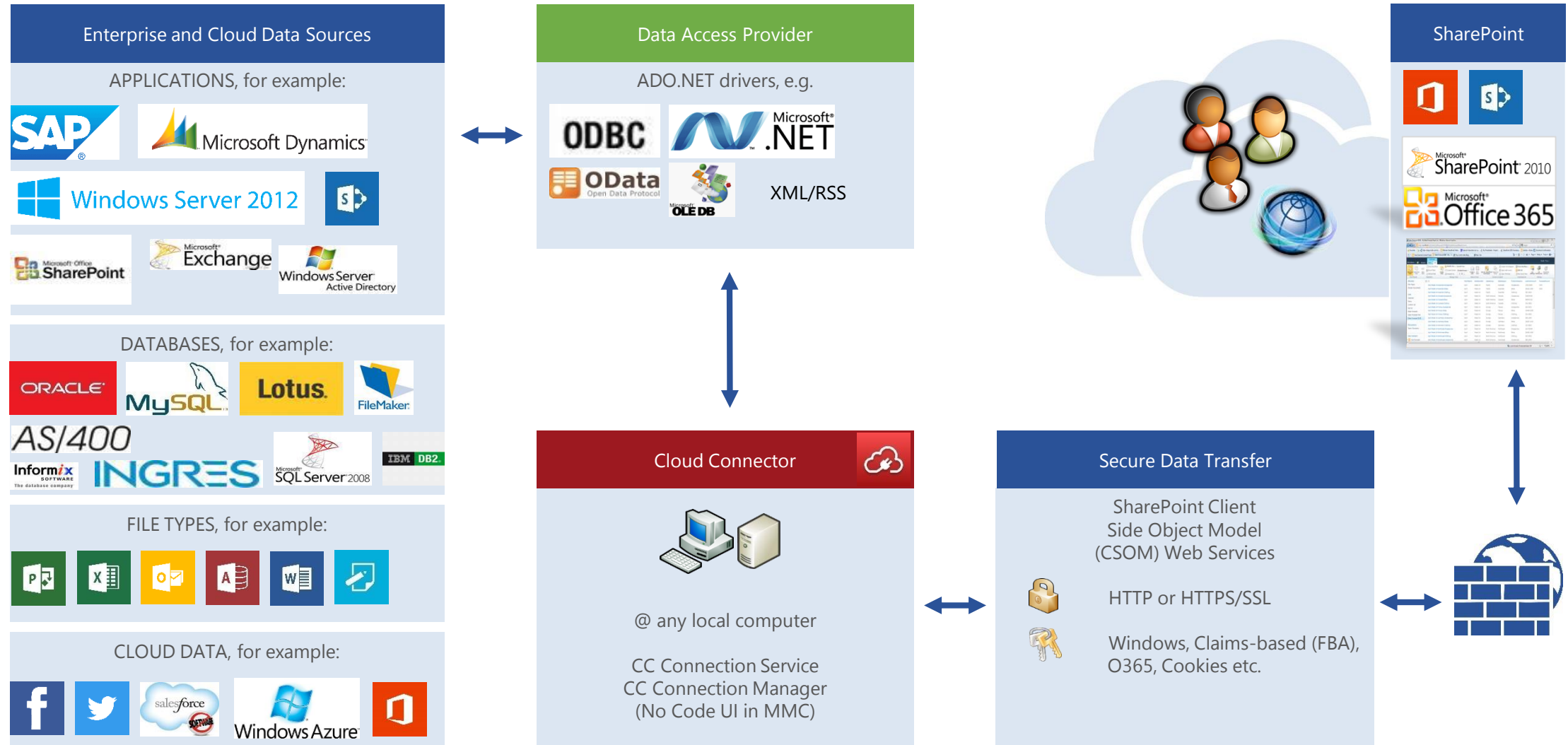


What is the Layer2 Cloud Connector?



- Originally developed for Microsoft Office 365 and SharePoint external data integration, the Layer2 Cloud Connector can be used to directly connect and sync almost any data source with any other codeless. Various data providers - vendor specific, included in package by Layer2, and also provided by 3rd party - can be used to connect and sync data from databases, files, web services and many specific enterprise systems and applications codeless.
- Layer2 Cloud Connector can connect *native* SharePoint lists and libraries (on-premise or in the cloud) directly to almost any external data source codeless, and bi-directional, if required.
- All SharePoint features are available as usual for your external data, e.g. views, search, metadata, change notifications and even workflows, to take business actions in SharePoint, when external data records are changed.
- The Cloud Connector simplifies your SharePoint architecture, increases end user performance and availability, overcomes limitations and solves many issues that still exists with the SharePoint out-of-the-box data integration via BDC and BCS today, especially in the Microsoft Office 365 cloud.
- The Cloud Connector runs as standalone application (MMC) and Windows Service on any Windows server or client, safely within the corporate network. *No access to corporate data from outside is required. No data transfer to 3rd parties. No user CALs required.*
- Supports SharePoint 2010, 2013, SharePoint Foundation, SharePoint Online / Office 365 / OneDrive for Business

How does the Layer2 Cloud Connector work?



What can be connected to SharePoint ... and also to each other



- **Databases** with existing ODBC / OLEDB / OData or other .NET based drivers (32-bit / 64-bit), e.g. SQL Server, SQL Azure, Oracle, IBM DB2, Informix, AS/400, MySQL and many more.
- **File Content** like Microsoft Office Excel, Access, XML, CSV or other text files etc.
- **File System** (to sync with SharePoint libraries)
- **Applications** like Exchange, Active Directory, SharePoint, etc.
- **ERP / CRM / DMS / ECMS 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, SOAP etc.
- **More data sources** via 3rd party provider and gateways.



Cloud Connector for SharePoint – Why we made it.

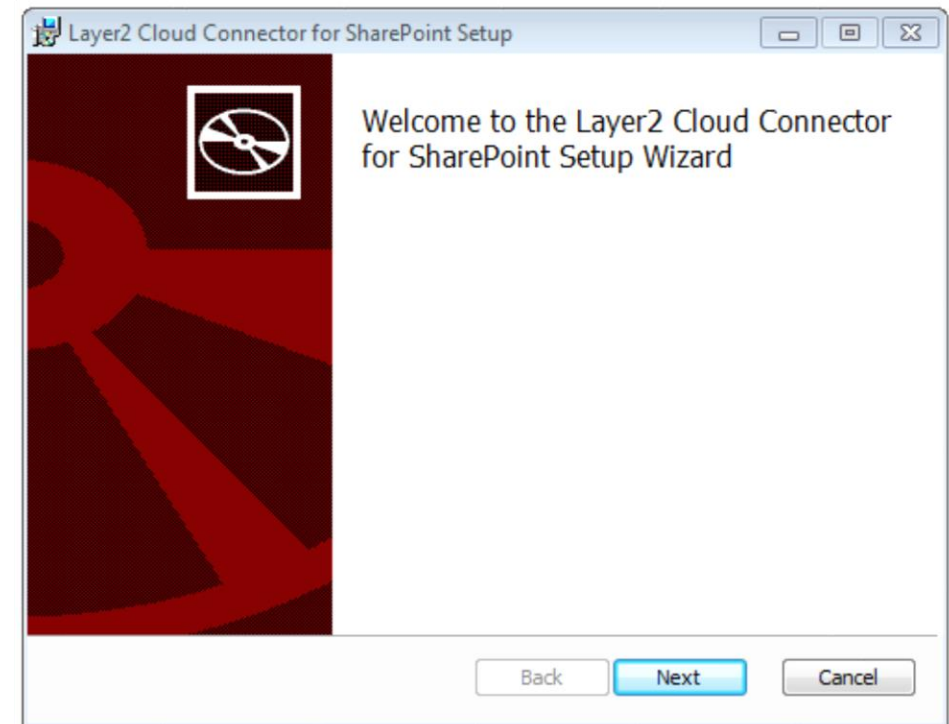


- **Overcome Limitations:** SharePoint and Office 365 out-of-the-box solutions for external data integration such as the Business Connectivity Services (BCS) or One Drive for Business are not available for all editions / plans and have serious limitations – compared to native lists and libraries, especially in the cloud. The Cloud Connector works with all plans and connects to *native* lists or libraries. You have views, search, metadata, alerts, workflows as usual. No problems with forms or 3rd party extensions.
- **Easy to configure – no changes in SharePoint:** BCS is difficult to configure. Tools, XML, customizing or even programming a web service is required. The Cloud Connector is easily configured using wizards. Every admin can do it. No installation on SharePoint.
- **Secure access:** BCS requires data access from outside to corporate data via web services. The Cloud Connector operates safely inside the corporate network as a “man in the middle” to push and pull data. No access from outside required. No 3rd party involved.
- **Simple architecture and deep integration:** BCS only displays the external data inside the SharePoint UI. That not only causes limitations, but also ends up in a complex architecture with real-time user access to all external sources at any page view and possibly licensing issues as well. With the Cloud Connector users access native SharePoint lists and libraries only as a stable synced cache with high performance and availability.

Installation & Setup



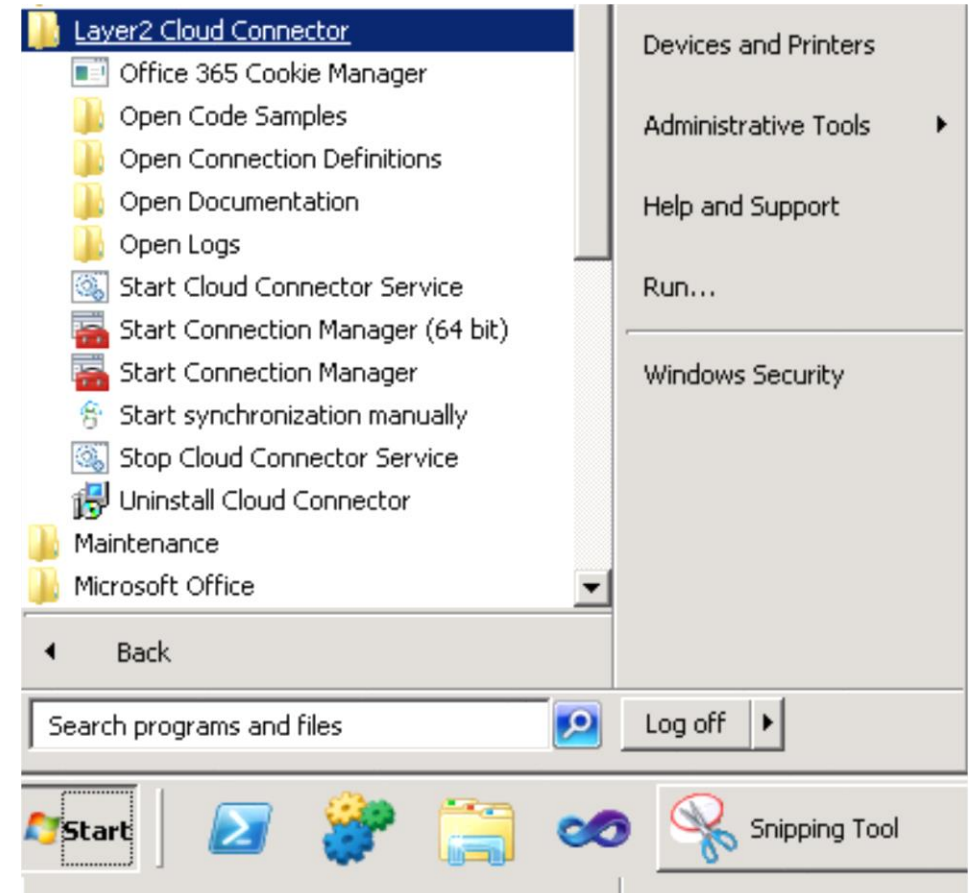
- register, download & unzip
- select between 32-bit or 64-bit installation depending on requirements (current hardware and OS, providers to support).
- use the installer: start setup.msi
- run as admin, if required
- accept license agreement
- select typical installation
- accept changes to computer
- install the Cloud Connector components and additional data providers
- press "Finish" to exit
- you can upgrade, repair or uninstall at any time using the installer again



What is installed?



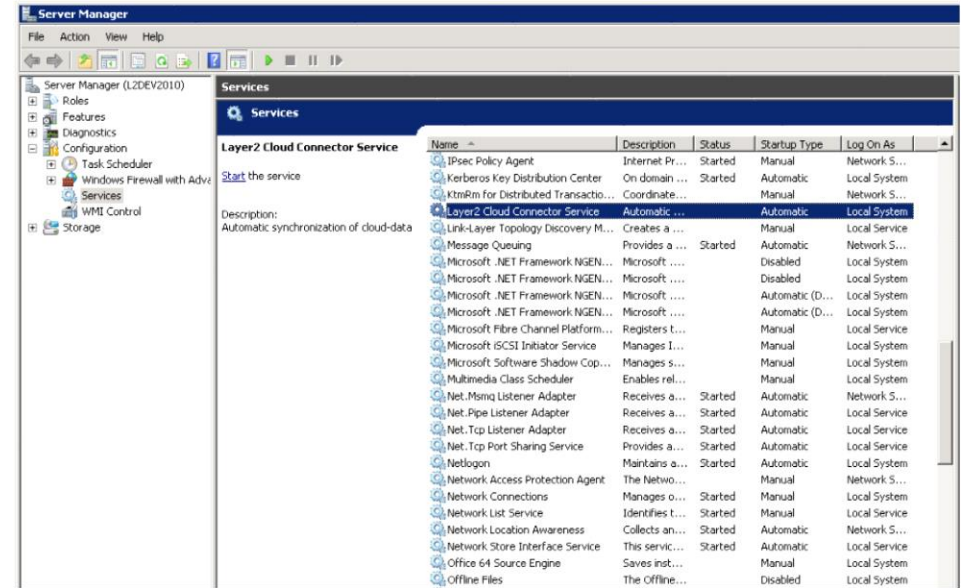
- **Connection Manager (64-Bit and 32-Bit)** to manage your connections.
- **Start and Stop Cloud Connector Service** to operate the Windows service for automatic background updates.
- **Start Synchronization Manually** for debug and specific requirements only.
- **Cookie Manager** required to support specific authentication features.
- **Folder access** to samples, documentation, connections, license, log files etc.
- **Uninstall** link.
- Layer2 Data Providers



The Connection Service



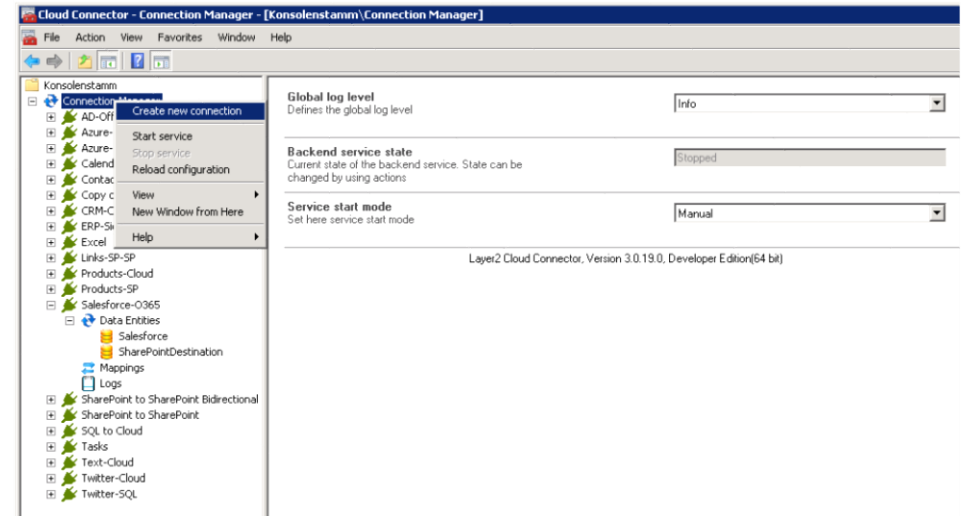
- Layer2 Cloud Connector Service is installed as a Windows service.
- This service automatically executes enabled connections defined with the Connection Manager in background.
- You can operate directly in Server Manager > Services or via Connection Manager.
- Make sure that it is running to synchronize any connection in background.



How to create a connection?



- Start the Connection Manager (Windows Start Menu)
- To create a new connection please copy an existing sample connection that best fits your requirements. Click right and select "Duplicate Connection".
- Rename and modify the new connection as required.
- In case of a Personal Edition please note that you can have only one connection leftover. Remove all others before executing.

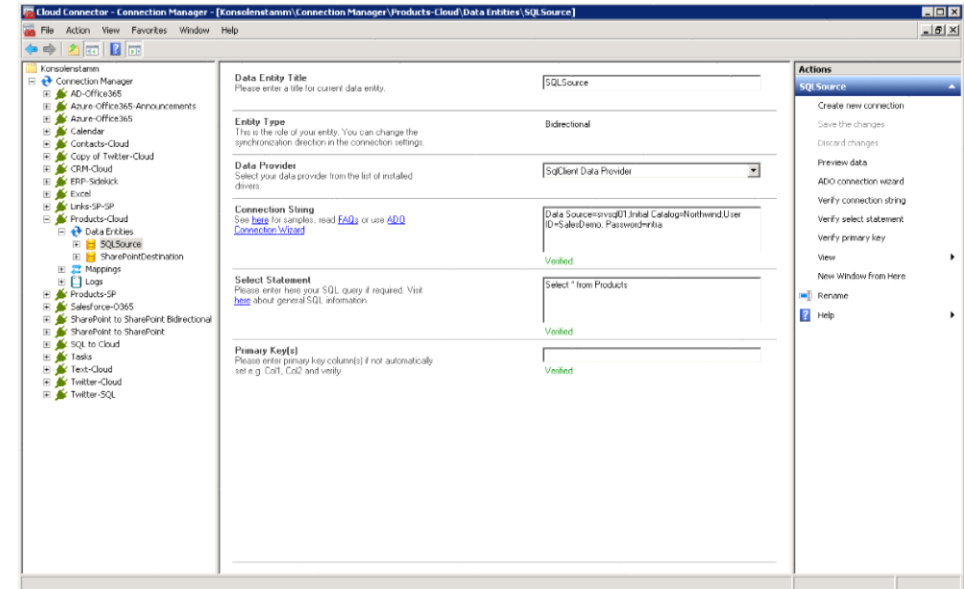


Data Entity Settings



Define your data entity properties as follows:

- Enter a data entity title, e.g. MyDataSource.
- Take care about the entity type shown here, e.g. source, destination or bi-directional. You can modify in the connection settings.
- Select a data provider to access your data entity. All installed drivers are listed. See next slides for more details about specific data providers.
- Enter a connection string to connect to your data entity. See next slides for more details about connection strings.
- Enter a query to select your data. See next slides for more details about specific select statements.
- When the select statement is verified, take a look at the data preview (see action menu, right hand side) to check for primary key.
- Enter the primary key(s) if required. See next slides about primary keys.



Data Entity: The Data Providers



Please select your Data Provider:

- You'll find a list of all installed providers and drivers at your computer in the provider drop-down.
- You have to install your 3rd party driver, if not present, e.g. Oracle driver to access Oracle database, RSSBus provider for Salesforce etc.
- To use 32-bit provider please install the 32-bit version of the Connection Manager, install the 64-bit version for 64-bit providers.
- You can use universal providers, e.g. ODBC, OLEDB, OData etc. to connect to almost any data source.
- The Cloud Connector out-of-the-box comes with Layer2 data providers for File System, RSS, XML, OData, SharePoint, Exchange, SOAP. See below for specification of these providers.
- Just ask your data source vendor for available ADO.NET providers, take a look at our FAQs or contact sales@layer2.de directly.

A screenshot of a software dialog box titled "Data Provider". It contains three main sections: "Data Provider" with a dropdown menu showing "SqlClient Data Provider" selected; "Connection String" with a text area and links for help; and "Select Statement" with a text area and a link for help. At the bottom, there is an "Encrypt" checkbox and a "Verify select statement" link.

Data Provider
Select your data provider from the list of installed drivers.

Connection String
See [here](#) for samples, read [FAQs](#) or use [ADO Connection Wizard](#)

Select Statement
Please enter here your SQL query if required. Visit [here](#) about general SQL information.

☐ Encrypt
[Verify select statement](#)

SqlClient Data Provider
Odbc Data Provider
OleDb Data Provider
OracleClient Data Provider
SqlClient Data Provider
Microsoft SQL Server Compact Data Provider
RSSBus SharePoint Data Provider
RSSBus Twitter Data Provider
RSSBus Salesforce Data Provider
Xtract Universal ADO.NET Provider
Layer2 Data Provider for SharePoint (CSOM)
Layer2 Data Provider for OData
Layer2 Data Provider for RSS Feeds
Layer2 Data Provider for File System
Layer2 Data Provider for XML

Data Entity: The Connection Strings



Please enter your connection string:

- Connection strings are not specific for the Cloud Connector. They are available for virtually any data source, e.g. SQL.
- To find the right connection string for your data source **see our [solutions](#) and [FAQs](#)**, ask your vendor, take a look at www.connectionstrings.com or contact sales@layer2.de.
- If you want to write to the data entity, take care about the required access rights.
- See below for Layer2 provider specifications and use of the Cloud Connector App connection string options.
- Verify your connection string.
- Please note that any error message on verification comes directly from the driver / provider selected - mostly not related to the Cloud Connector product.
- You can encrypt security relevant connection string settings to not appear in the connection files.

A screenshot of a "Connection String" dialog box. The title bar says "Connection String". Below the title, it says "See [here](#) for samples, read [FAQs](#) or use [ADO Connection Wizard](#)". The main text area contains the connection string: "Data Source=svrsql01; Initial Catalog=Northwind; User Id=myUser; Password=myPwd". Below the text area, there is a checkbox labeled "Encrypt" which is currently unchecked. At the bottom right, there is a button labeled "Verify connection string".

Data Entity: The Select Statement / Data Query



- The select statement queries your external data set via the selected provider and connection string.
- Select statements or queries are not specific for Cloud Connector and available for virtually any data source.
- To find the select string or query for your data source see our FAQs or ask your vendor.
- Samples for Select Statements are SQL, Xpath, Odata etc.
- See below for Layer2 provider query specifications.
- Please validate your query. Please note that any error message on query validation directly comes from the driver / provider selected - mostly not related to the Cloud Connector product.
- Use the data preview feature (-> Actions) to get an impression of your available field names, field types and data.
- Your select statement should contain a primary key (one or more unique columns)
- If you want to write to this data entity take care that your query is updatable.
- You can encrypt security relevant settings to not appear in the connection files.

Select Statement
Please enter here your SQL query if required. Visit [here](#) about general SQL information.

Select * From Products

☐ Encrypt

Verified

Data Entity: The Primary Key(s)



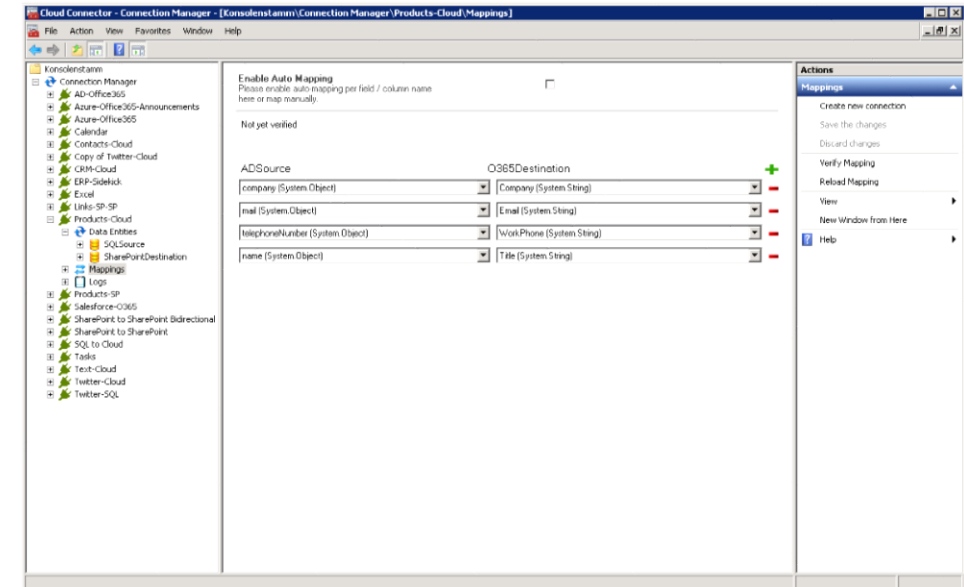
- Columns with unique values are required to manage the synchronization.
- Actually it must not be a native primary key, but unique in one column or several columns together.
- Please enter: myPK or myCol1; MyCol2 etc.
- Most data sources can expose primary key(s) automatically, if available (e.g. SQL Server or SharePoint). **No need to enter anything in this case.**
- If no unique columns are available, you can possibly add, e.g. GUIDs in case of SQL.
- Optionally you can use any text field to fill with a GUID automatically (see Replication Key option)

Primary Key(s) Please enter primary key column(s) if not automatically set e.g. Col1, Col2 and verify.	<input type="text"/> <input type="checkbox"/> Encrypt Verify primary key
Replication Key (optionally) In some cases using a global unique identifier (GUID) can help to solve replication issues. The field values are created automatically by the Cloud Connector on insert. Please enter the name of the existing field / column to use. Any text or GUID field type can be used.	<input type="text"/> <input type="checkbox"/> Encrypt Verify replication key

Field Mapping between data entities



- You have to map the fields / columns of your data entities to each other as follows:
- There is no automatic creation of table or list structures. Please create manually before mapping. Refresh mapping when the data structure has been changed.
- If data source and destination have similar structure / field names, you can enable auto-mapping. Auto-mapping is done automatically by field name.
- Take care about the data types. There is some built-in type conversion, but please match as best as you can.
- Add new mapping entries using the "+" button. Remove unwanted mappings using the "-" button.
- Unmapped fields are kept untouched in case of updates.
- Verify mapping when you are ready.
- That was the last step. Please return to the connections settings and run the connection to test. See "Logs" for results.
- Be careful to map SharePoint system fields. Best to use custom columns to sync metadata.



First Synchronization and further options



- To sync your connection first time, please press "Run Now" in connection settings.
- Please note that the first update can take some time, depending on amount of data and configuration. Take care about warnings or error messages. The free shareware is limited to 25 records / items. Contact sales@layer2.de for a time-limited full-featured trial.
- After first update is finished successfully, press update again. No items should be changed now (if there are no changes in source, the given primary key works as expected and there are no mapping or type conversion issues). The 2nd update should be much faster.
- To process further updates automatically please enable scheduling. Set appropriate intervals, depending on requirements, amount of data and configuration.
- Please note that the Connection Service must be running for background updates (see root node of your connections tree)
- You can also update your connection on demand via command line or API.

The screenshot shows the "1-SQL to Cloud" configuration window. It has a title bar with the text "1-SQL to Cloud". Inside, there are several sections: "Connection Title" with a text box containing "1-SQL to Cloud"; "Direction" with three radio buttons: "Left to Right" (selected), "Right to Left", and "Bi-directional"; "Scheduling enabled" with a checkbox that is unchecked; "Interval" with a text box containing "1" and a dropdown menu set to "Hour"; and "First Run Date / Time" with a date/time picker showing "Montag, 6. Februar 2012 10:44:10". At the bottom, there is a "Run Synchronization Toolbox" section with three buttons: "Run now", "Abort", and "View log". Below these buttons, there is a status bar with a green circular arrow icon and the text "Synchronization in progress ... please wait." and a log area with two entries: ">Connecting to the data entity 'MyNorthwindDatabase'... '79' items retrieved." and ">Connecting to the data entity 'MySharePoint'...".

Highest Security Level



- With the Cloud Connector your SharePoint users do not access your external data directly. That gives you the highest security level possible.
- The Cloud Connector operates safely in the local network with full control.
- No data access to local data from outside the network required, e.g. via incoming web services.
- No data is exposed to any 3rd party (e.g. Windows Azure).
- You can hide your connection settings by using encryption and file system access rights.
- SSL / HTTPS fully supported for secure communication.
- You can use integrated authentication if supported by the data providers.
- Please note that the Cloud Connector is proven to be aware against SQL injection by design.



Highest Performance – Reliable Architecture



- End users do access native SharePoint list data only for highest performance – not the external source directly.
- For best update performance use as few columns as possible, e.g. no select * from myTable. Use views in case of SharePoint.
- Restrict your result set if possible using where clauses or views.
- Changes are committed only – not the whole data sets.
- The Cloud Connector is proven to work with up to more than 100.000 records / items, depending on configuration and data source performance. No problem with the 5.000 items list view threshold in SharePoint. Use the unmodified AllItems view for sync in this case.
- Please note that the SharePoint configuration and bandwidth must meet the Microsoft requirements.



All Native SharePoint List Features Available for your External Data



- You can use native SharePoint lists and libraries of any type, e.g. contacts
- ALL list features are fully available
- Views, sorting, filtering, grouping, calculated fields, managed metadata, tagging ...
- Search with all options as usual
- Alerts and notifications, RSS
- Workflows on external data change (!) with SharePoint OOTB, Visio, VS, Nintex etc.
- Additional non-mapped SharePoint-only columns and attachments
- Offline availability (e.g. in Outlook, Workspace, SkyDrive Pro)
- Datasheet view, detail forms, InfoPath, Nintex Forms etc.
- Item context menus
- Export to Excel
- Events, Web services, XML
- Compatible with all 3rd party add-ons
- No extra license required for end users to access the source data in SharePoint.

The screenshot shows the SharePoint interface for a list. The top navigation bar includes 'Site Actions', 'Browse', and 'List Tools'. The 'List Tools' tab is active, showing options like 'Show Task Pane', 'Show Totals', 'Refresh Data', 'Create View', and 'Navigate Up'. The 'Current View' is set to 'All Items'. The main content area displays a table with the following data:

ID	Title	SourceID	Units	Preis	Lieferbar
393	Frank's Super Chai Plus	1	100 boxes x 200 bags	8.00 €	No
394	Super Chang 2 Stars A1	2	24 - 12 oz bottles	19.00 €	No
395	Aniseed Syrup	3	12 - 550 ml bottles	10.00 €	No
396	Chef Anton's Cajun Seasoning	4	48 - 6 oz jars	22.00 €	No
397	Chef Anton's Gumbo Super Mix Max	5	36 boxes	21.35 €	Yes
398	Grandma's Boysenberry Spread	6	12 - 8 oz jars	25.00 €	No
399	Uncle Bob's Organic Dried Pears	7	12 - 1 lb pkgs.	30.00 €	No
400	Northwoods Cranberry Sauce	8	12 - 12 oz jars	40.00 €	No
401	Mishi Kobe Niku Cream Extra	9	18 - 500 g pkgs.	97.00 €	Yes
402	Ikura Version 5	10	12 - 200 ml jars	31.00 €	No
403	Queso Cabrales	11	1 kg pkg.	21.00 €	No
404	Queso Manchego La Pastora	12	10 - 500 g pkgs.	38.00 €	No
405	Konbu	13	2 kg box	6.00 €	No
406	Super Tofu	14	40 - 100 g pkgs.	23.25 €	No
407	Genen Shouyu	15	24 - 250 ml bottles	15.50 €	No

What else can you do?



- Provide consistent enterprise data in SharePoint always up-to-date for your users to create lookups, build forms etc. – before they copy the data manually.
- 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 SharePoint / Office interface now, on-premise or in the cloud.
- Build secure extranets with pre-selected replicated enterprise data for customers or other partners.
- Access your pre-selected enterprise data mobile via Office 365 / Exchange Online.
- Aggregate feeds right into SharePoint lists, e.g. RSS or Twitter for search and notifications.
- 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 keep your users up-to-date.
- Sync files and folders from any local file share with SharePoint libraries.

The screenshot shows a SharePoint list interface. The top navigation bar includes 'Site Actions', 'Browse', and 'List Tools'. The 'List Tools' tab is active, showing options like 'Show Task Pane', 'Show Totals', 'Refresh Data', 'Create View', 'Create Column', 'Navigate Up', 'Current View: All Items', 'E-mail a Link', 'Alert Me', 'RSS Feed', 'Sync to SharePoint Workspace', 'Connect to Outlook', and 'Export to Excel'. The main content area displays a table with columns: ID, Title, SourceID, Units, Preis, and Lieferbar. The table lists 15 items, including various food products like 'Frank's Super Chai Plus', 'Super Chang 2 Stars A1', 'Aniseed Syrup', etc.

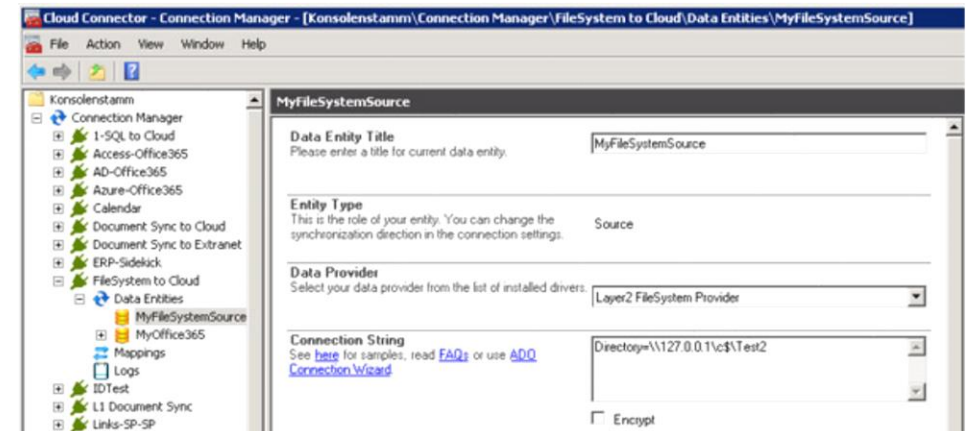
ID	Title	SourceID	Units	Preis	Lieferbar
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396	Chef Anton's Cajun Seasoning	4	48 - 6 oz jars	22.00 €	No
397	Chef Anton's Gumbo Super Mix Max	5	36 boxes	21.35 €	Yes
398	Grandma's Boysenberry Spread	6	12 - 8 oz jars	25.00 €	No
399	Uncle Bob's Organic Dried Pears	7	12 - 1 lb pkgs.	30.00 €	No
400	Northwoods Cranberry Sauce	8	12 - 12 oz jars	40.00 €	No
401	Mishi Kobe Niku Cream Extra	9	18 - 500 g pkgs.	97.00 €	Yes
402	Ikura Version 5	10	12 - 200 ml jars	31.00 €	No
403	Queso Cabrales	11	1 kg pkg.	21.00 €	No
404	Queso Manchego La Pastora	12	10 - 500 g pkgs.	38.00 €	No
405	Konbu	13	2 kg box	6.00 €	No
406	Super Tofu	14	40 - 100 g pkgs.	23.25 €	No
407	Genen Shouyu	15	24 - 250 ml bottles	15.50 €	No

- Create cloud-to-cloud connections, e.g. to Office 365, Salesforce, MS CRM, Google, Facebook, Twitter etc.
- Replicate any data source with any other, not only with SharePoint (Enterprise Edition).

Layer2 Data Provider for File System



- Use this provider to sync any local or remote file system folder with a SharePoint library or with other file system. Any plan and data amount supported.
- Overcome the limitations of OneDrive for Business: Unlimited number of files, no issues with forbidden file names, path lengths, file types.
- A common usage for this data provider is to provide selected local folders or file server shares in SharePoint libraries, e.g. SharePoint Online.
- This provider can operate bi-directional.
- Directory: Path to the files to be retrieved. Setting is mandatory. Value for the setting can be a local path or a network share in UNC format. C:\myFiles\ or \\myShare\myfiles\
- Authentication can be Windows (Default). User and Password can be given, e.g. \\mydomain\myUser otherwise current user authentication is used.
- FilenameFilter can be used in connection string to query a directory, e.g. *.pfd or A?B.*. Target folders are supported.
- No select statement supported. Please use views instead of.
- 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 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.
- This provider is read-only.
- URL can be set to the url (HTTP/HTTPS, best taken from browser) or file path (e.g. C:\myfile.xml)
- Authentication: See CSOM
- 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.

The screenshot shows the configuration interface for the Layer2 Data Provider for XML. It is divided into three main sections: "Connection Provider", "Connection String", and "Select Statement".

Connection Provider: A dropdown menu is set to "Layer2 Data Provider for XML".

Connection String: A text area contains the URL "http://www.w3schools.com/xml/cd_catalog.xml". Below the text area is a "Validate" button.

Select Statement: A text area contains the XPath query "select * from /CATALOG/CD[COUNTRY='USA']". Below the text area is a "Validate" button.

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). Several feeds can be accessed at once, delimited by comma.
- Authentication: See CSOM
- FeedType = RSS, Atom, RDF
- FeedSource provides an additional field Source. Value can be set in connection string. Can be used to aggregate multiple feeds in one list.
- Usual RSS fields are exposed, but any other custom fields as well.
- The "No Delete" option can be used to implement feed archives (aggregation).
- This provider is read-only.
- Source code is included in distribution as a sample how to write your own provider.

A screenshot of a web-based configuration interface for the Layer2 Data Provider. It features two main sections: "Connection Provider" and "Connection String". The "Connection Provider" section has a dropdown menu currently showing "Layer2 Data Provider for RSS Feeds". The "Connection String" section contains a text area with the following text: "Url=http://www.pressebox.com/rss/flag/software.rss; Auth=Anonymous; FeedType=RSS; FeedSource=Pressebox". Below the text area is a "Validate" button.

Connection Provider

Layer2 Data Provider for RSS Feeds

Connection String

Url=http://www.pressebox.com/rss/flag/software.rss;
Auth=Anonymous; FeedType=RSS; FeedSource=Pressebox

Validate

Layer2 Data Provider for SharePoint (CSOM) 1/2



- Connects to SharePoint lists and libraries, on-premise and in the Microsoft cloud, bi-directional if required.
- URL parameter (required) provides the link to the source list or library. Please copy from browser. Best to use a certain view.
- 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/AllItems.aspx

Validate

Layer2 Data Provider for SharePoint (CSOM) 2/2



- License Option: License=SPAppStore can be used to indicate that the licensing should be managed by Microsoft SharePoint 2013 App Store.
- AppWebURL Option can be used to point to your app site, e.g. AppWebUrl=https://MyDomain-acfbd392f35f45.sharepoint.com/MySite;
- 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.
- Contact sales@layer2.de if there are any issues.

A screenshot of a software configuration window titled "Layer2 Data Provider for SharePoint (CSOM)". The window has a light gray background and a thin border. It contains two main sections: "Connection Provider" and "Connection String". The "Connection Provider" section has a dropdown menu with "Layer2 Data Provider for SharePoint (CSOM)" selected. The "Connection String" section has a text area containing the following text: "Url=https://mydomain.sharepoint.com/sites/mysite/Lists/myList/myItems.aspx", "Authentication=Office365;", "User=myuser@mydomain.onmicrosoft.com;", and "Pass=mypwd". Below the text area is a "Validate" button.

Connection Provider

Layer2 Data Provider for SharePoint (CSOM)

Connection String

Url=https://mydomain.sharepoint.com/sites/mysite/Lists/myList/myItems.aspx
Authentication=Office365;
User=myuser@mydomain.onmicrosoft.com;
Pass=mypwd

Validate

Layer2 Data Provider for OData



- Use this provider to query external data via OData interface and sync bi-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: See CSOM
- 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.

The screenshot shows the configuration interface for the "Layer2 Data Provider for OData". It features a title bar with the provider name. Below the title bar, there is a text input field containing the OData URL: "url=http://services.odata.org/Northwind/Northwind.svc/;Collection=Products;Authentication=Anonymous". Underneath the URL field is a checkbox labeled "Encrypt" which is currently unchecked, followed by a blue hyperlink "Verify connection string". A horizontal line separates this section from the next. The second section has a text input field containing the OData select statement: "\$select=*". Similar to the first section, it has an unchecked "Encrypt" checkbox and a blue hyperlink "Verify select statement".

Layer2 Data Provider for OData

url=http://services.odata.org/Northwind/Northwind.svc/;Collection=Products;Authentication=Anonymous

☐ Encrypt

[Verify connection string](#)

\$select=*

☐ Encrypt

[Verify select statement](#)

Layer2 Data Provider for Exchange



- Use this provider to query external data from Microsoft Exchange on-premises or Online and sync uni-or bi-directional.
- A common usage for this provider is syncing contact data in Exchange with SharePoint lists to make it available offline in Outlook.
- URL: This is the Service Root URL for the Exchange source.
- Username / Password: Your Exchange login.
- NamingScheme: Field names are provided automatically to fit to the target system. Already implemented: SharePoint (to fit e.g. to contacts)
- There are more options available for more specific requirements. Please see full specification in FAQs.
- Contact sales@layer2.de if there are any issues.

Layer2 Data Provider for Exchange ▼

Url=outlook.office365.com;
Username=myUser@myDomain.com;
NamingScheme=SharePoint; Password=myPassword

☐ Encrypt

[Verify connection string](#)

SELECT * from Contacts

☐ Encrypt

[Verify select statement](#)

☐ Encrypt

[Verify primary key](#)

Layer2 Data Provider for SOAP Web Services



- Use this provider to query external data from SOAP Web Services codeless.
- A typical connection string for the Layer2 Data Provider for SOAP Web Services looks like:

Url= <Url of the web service >; User= <UserName>; Password= <Password>; Protocol= <Soap protocol version>
- The provider supports a slightly different syntax than SQL to query the items from the web service like:
SELECT [Fields] FROM [Operation]([Parameters])
- Please find a full specification for the Layer2 Data Provider for SOAP Web Services in documentation and FAQs.
- Note that the data provider is read-only. No write-operations supported. There are more options available for more specific requirements.
- Contact sales@layer2.de if there are any issues.

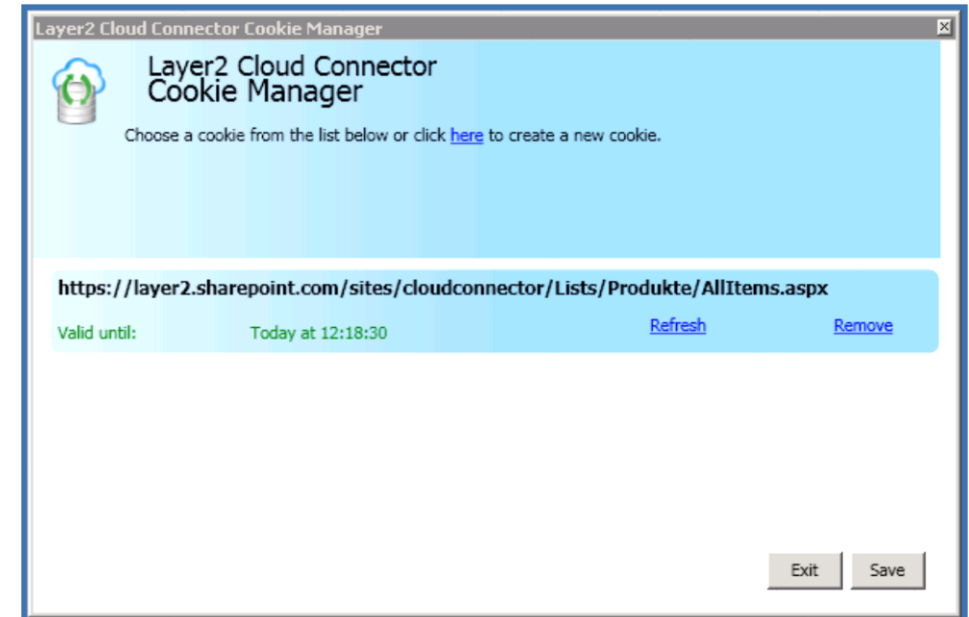
A screenshot of the "Source" configuration window for the Layer2 Data Provider. The window has a dark grey header with the title "Source". Below the header, there are several sections with labels and input fields:

- Data Entity Title**: "Please enter a title for current data entity." with a text input field containing "Source".
- Entity Type**: "This is the role of your entity. You can change the synchronization direction in the connection settings." with a dropdown menu showing "Source".
- Data Provider**: "Select your data provider from the list of installed drivers." with a dropdown menu showing "Layer2 Soap Provider".
- Connection String**: "See [here](#) for samples or read [FAQs](#)." with a text area containing "Url=http://www.thomas-bayer.com/axis2/services/BLZService". Below the text area is an "Encrypt" checkbox (unchecked) and a link "Verify connection string".
- Select Statement**: "Please enter here your SQL query if required. Visit" with a text input field containing "select bezeichnung, bic, ort from getBank(23051610)".

Layer2 Cookie Manager



- Please note that this is not the preferred authentication method ... but:
- You can use the Cookie Manager for any form-based or cookie-based Authentication.
- You can create, refresh and remove cookies.
- Internet Explorer is required as default Browser.
- Cookies are required to use Office 365 connections with the IECookie authentication method. Please note, that the preferred authentication for Office 365 is "Office365", not "IECookie".
- Please note, that cookies can expire when using with Cloud Connector scheduled updates.
- Contact sales@layer2.de if there are any issues.



Free Shareware & Licensing



- The Cloud Connector can be used as free Shareware with limitations (25 items per list). Full featured time-limited license on request.
- The Cloud Connector can be licensed per local installation. No user CALs required. One-time fee.
- Optional annual Software Assurance for free updates and upgrades per installation available.
- The Personal Edition is limited to one connection to SharePoint.
- The Professional Edition supports an unlimited number of connections between any end-points,
- The Cloud Connector can be also used via the SharePoint App Store as a free Shareware with limitations (25 items per list)
- Several support options, e.g. free or per hour.
- No new installation is required for licensing, just placing the license file in license directory.
- You can order online using any payment procedure you want.
- Contact sales@layer2.de if you have any questions or need any specific quote.

Layer2 Cloud Connector		
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Professional Edition 1 Single Server License	\$1,407.00	
1 Annual Software Assurance for Professional Edition	\$281.00	
Enterprise Edition ** 1 Single Server License	\$6,390.00	
1 Annual Software Assurance for Enterprise Edition **	\$1,290.00	
Prepaid Remote Support 1 Hour	\$176.00	
Please contact sales@layer2.de in case you want to order directly via Layer2 based on quote, invoice and bank transfer.		

Cloud Connector App



- The Cloud Connector is also available in the Microsoft SharePoint 2013 App Store.
- The app can be used to select a SharePoint list or library within the scope of the app as a data entity to generate a valid connection string and copy / paste into local components.
- Please follow the step-by-step instructions online.
- Note that the local components are required to install.
- The free version that is available via App Store has a 25 items limit. Please license as Personal or Pro Edition for more.
- Contact sales@layer2.de if you have any questions.

A screenshot of the Layer2 Cloud Connector App web interface. The page has a blue header bar with the text "Layer 2 GmbH Team Site" and navigation links for "Outlook", "Calendar", "People", "Newsfeed", "SkyDrive", and "Sites". Below the header, the main content area is titled "Cloud Connector App by Layer2". It features a "Create Your Connection String" section with three numbered steps: 1. "Choose a list or library for your connection" (with a dropdown menu showing "Documents"), 2. "Choose a view for your actual list" (with a dropdown menu showing "All Documents"), and 3. "Choose an authentication method" (with a dropdown menu showing "Office365 - Microsoft Online Services ID"). Below these steps is a text box labeled "Your Connection String" containing a long URL and various parameters. To the right of the main content is a vertical sidebar with icons and links for "Getting Started", "Create Your Connection String" (highlighted), "Download Local Components", "Help / FAQs", "Support", and "About". At the bottom of the sidebar is a "Settings" section with a checkbox for "Show Welcome Screen on Start". A "Copy to Clipboard" button is located at the bottom right of the connection string text box. A small information icon and text at the bottom left of the main content area state: "Please update your Username and Password after copying the connection string to the connection settings within the Connection Manager."

Layer2 SharePoint, Office 365 and Azure 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, Deloitte, US Defense Department, NATO, United Nations World Food Programme (WFP), Unico Banking Group, Swiss Life AG and many others.
- See www.layer2solutions.com for more information.



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- Please click below to register, download and evaluate today. See [here](#) for FAQs.

