

INTEGRATING DYNAMICS CRM AND SHAREPOINT SECURITY

USING THE CONNECT BRIDGE

This white paper provides overview about CB Dynamics CRM privileges to SharePoint permissions replicator solution and explains how it works. It explains architecture of the solution and the mapping between security model of Dynamics CRM and SharePoint.

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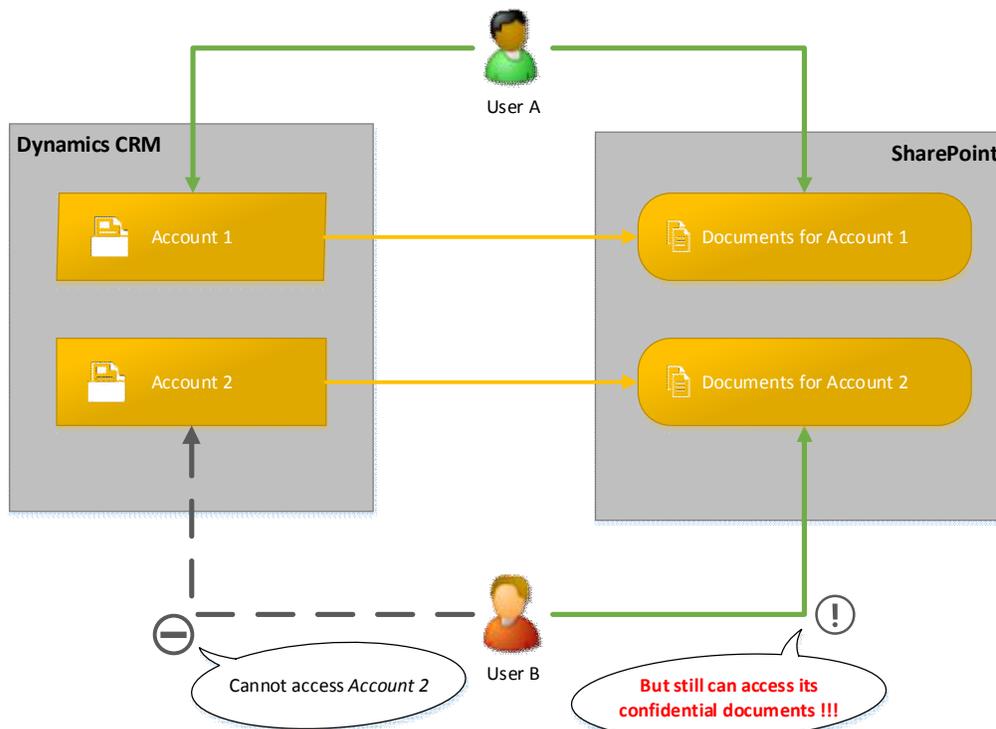
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INTRODUCTION

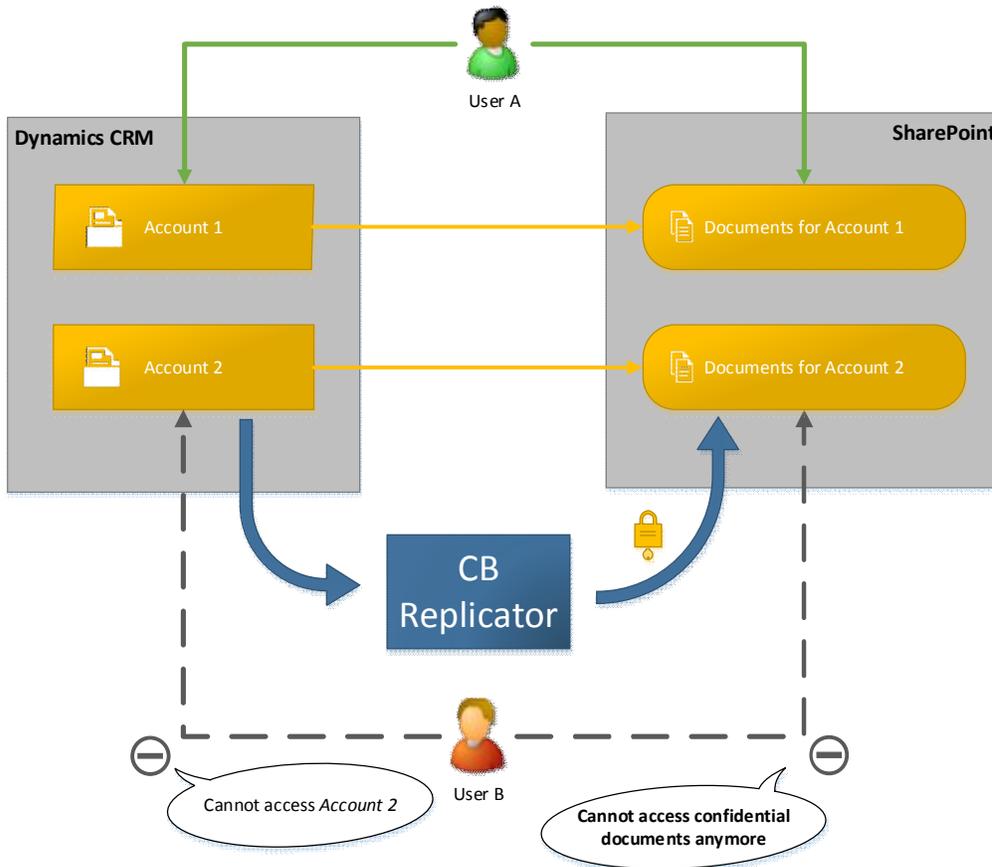
The standard out-of-the-box integration between Dynamics CRM and SharePoint is a very powerful feature that allows you to link your SharePoint documents with your CRM records. Moreover you can manage SharePoint documents and use most of the SharePoint features directly from your CRM user interface. However there is a limitation. The out-of-the-box solution is missing security integration. The security models of Dynamics CRM and SharePoint differs significantly. The document capability of SharePoint is integrated into CRM but security permissions of CRM into SharePoint are not.



Dynamics CRM users can only see records and documents relevant to them. However even a user with absolutely no rights to see documents for a particular entity in Dynamics CRM can see them in SharePoint document libraries. The rights needs to be integrated in all cases. Extending the scenario you share some specific document with a colleague who has no rights for that specific record. This has to be reflected in SharePoint as well. The standard out-of-the-box solution does not cover above described examples and rights management at all. Connecting Software provides simple solution.

PRODUCT OVERVIEW

The CB Dynamics CRM privileges to SharePoint permissions replicator (CB replicator) covers whole Dynamics CRM security model. It ensures that the proper user rights are applied to the SharePoint folders (libraries, sites, document sets). With this solution you can be sure that each document in SharePoint will be accessible to exactly those users who have access to the respective record in Dynamics CRM. Any additional modification of the Dynamics CRM privileges for each record will be automatically applied to the permissions in SharePoint.



ARCHITECTURE

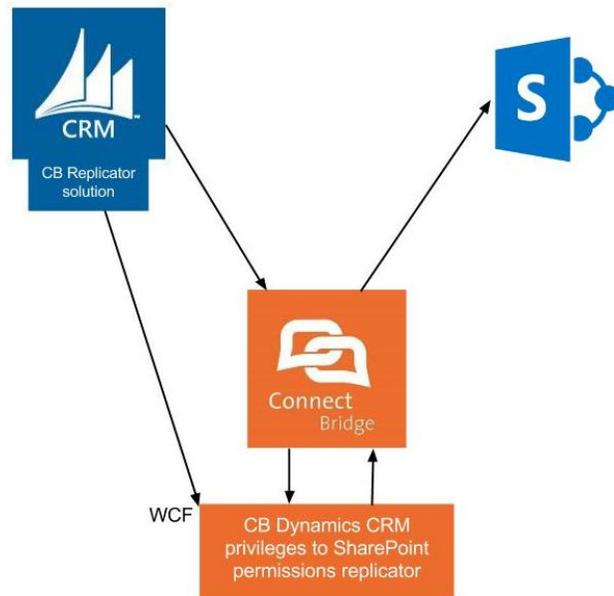
The CB replicator consists of several components. These components interact together to achieve desired results. The deployment is quite simple despite multiple components.

1.1 CB Replicator Windows service

The CB Dynamics CRM privileges to SharePoint permissions replicator service is a standalone service. It handles all the described application logic. It opens WCF endpoint where Dynamics CRM can send notification about the events. The service reads event and compares current and expected permissions in SharePoint. If evaluated permissions do not match it will write appropriate changes into SharePoint.

1.2 CB Replicator CRM solution

The purpose of this solution is to collect all the events that occur in Dynamics CRM and can lead to possible permission replication request.



The solution consists of CRM plugin and custom entities to maintain events persistence and necessary configuration information. The managed solution is deployed directly into Dynamics CRM.

1.3 Connect Bridge platform

The CB Replicator uses Connect Bridge platform to access Dynamics CRM and SharePoint. The Connect Bridge has client server architecture and can be installed at the same machine as CB Replicator. For detailed information visit <http://www.connecting-software.com>.

HOW IT WORKS

The CB replicator brings all in one package. It has been designated to cover various client scenarios.

2.1 Fully automated

The CB replicator is fully automated. There are no explicit user actions required to trigger permission replication. Users can concentrate on their work and CB replicator will ensure confidentiality of their documents in the background.

2.2 Event-based

Small CRM solution is deployed as a part of the CB replicator. It automatically tracks/checks changes in Dynamics CRM. When some change occurs that requires security attention it will adjust SharePoint permissions accordingly.

The CB replicator supports following list of events:

- SharePoint Document Location
 - Create
 - Update
- User
 - Create
 - Update (manager, position)
 - Disable
 - Add role
 - Remove role
 - Change business unit
- Team (including access team and access team template)
 - Create
 - Delete
 - Add role
 - Remove role
 - Add member
 - Remove member
 - Change business unit
- Role
 - Create
 - Update
 - Delete
 - Add privilege
 - Remove privilege
 - Replace privilege
- Business unit
 - Create
 - Update
 - Delete
 - Disable
 - Change business unit
- Sharing (including cascading and re-parent action)
 - Grant (share)
 - Modify
 - Revoke
- Change record owner
- Change status (statecode)
- Organization
 - Update (hierarchy security properties)
- Position
 - Create
 - Update
 - Delete
- Hierarchy security configuration (excluded entities)
 - Create
 - Delete

Enumerated events cover whole security model of Dynamics CRM. Therefore whatever the user does the CB replicator always ensures proper permission mapping to the SharePoint document locations.

2.3 Support of all CRM entities

The CB replicator works in generic way with **any document enabled entity** in Dynamics CRM. So all the standard entities are supported, e.g. account, contact, opportunity, quote or invoice. Moreover CB replicator supports all custom entities.

2.4 Supported versions

Supported versions are Dynamics CRM 2011, 2013, 2015, 2016, Online and SharePoint 2010, 2013, 2016, Online.

2.5 Absolute / relative document locations

The CB replicator fully supports absolute and relative paths. You can create document location in the way you want – the CB replicator supports both. Moreover CB replicator is able to work with SharePoint document location across different SharePoint sites and site collections.

2.6 User mapping

The CB replicator maps users between CRM and SharePoint automatically based on their login names.

Additionally it is possible to override or completely disable this behavior and add custom mapping. You can configure mapping from any CRM user to any SharePoint user or directory group.

2.7 Security model mapping

The CB replicator breaks security inheritance in SharePoint and transfers CRM security model as folder (document set), file, library or site level permission on specific items that are referenced by *sharepointdocumentlocation* record in CRM.

Permission are mapped in one way: from Dynamics CRM to SharePoint.



There are significant differences between Dynamics CRM and SharePoint security model so the complex permission mapping is required. In Dynamics CRM, we have several entities and actions that needs to be covered:

- User
- Team
- Access team
- Access team template
- Security role
- Business unit
- Sharing
- Privilege
- Privilege depth
- Hierarchy security (managers, positions)

The SharePoint security model provides only:

- Users
- Groups
- Security roles (Privilege levels)

The CB replicator maps target system security objects based on following rules:

CRM		SharePoint
User (systemuser)	→	User
Manager	→	User
Team	→	Group
Access team	→	Group
Access team template	→	User / Group
Security role	→	Group
Business unit	→	Group (for default team)
Sharing	→	User / Group
Access right	→	Privilege level (configurable)
Position	→	Group

2.8 Access rights mapping

In Dynamics CRM there is a constant list of access rights that are mapped to dedicated SharePoint security roles (permission levels).

CRM right	access		SharePoint permission level	SharePoint permissions
ReadAccess		→	cbreplicator_crm_ReadAccess	ViewListItems, OpenItems, ViewVersions, ViewFormPages, Open, BrowseDirectories, BrowseUserInfo, UseClientIntegration, UseRemoteAPIs, CreateAlerts
WriteAccess		→	cbreplicator_crm_WriteAccess	AddListItems, EditListItems, DeleteListItems, DeleteVersions
CreateAccess		→	-	
DeleteAccess		→	-	
AppendAccess, AppendToAccess, AssignAccess, ShareAccess		→	-	

This mapping is fully configurable so you can create custom mapping between CRM and SharePoint including custom permission levels.

2.9 Multitenancy

With single installation of CB Replicator you can configure replication process for multiple Dynamics CRM instances. The CB Replicator also supports multiple SharePoint site collections for single Dynamics CRM organization.

SUMMARY

Many companies frequently use the out-of-the-box document integration between Dynamics CRM and SharePoint. Some of them are not aware of the security risk that is coming from this integration. For another companies is missing security integration the reason why they decided not to use this integration.

The CB replicator is a tool to solve missing security integration. It takes the CRM security model and converts it into SharePoint security model. The proper mapping between different models ensures that same rights are applied on folders and underlying files in SharePoint as for belonging CRM record.

With the CB replicator you can elevate whole power of document integration without having fear of

possible security leaks and undesirable SharePoint data access.

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