A MITEL
PRODUCT
GUIDE

# Unify OpenScape Xpressions V7

optiClient and MS Dynamics CRM

Installation Guide
11/2018

Mitel®

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# 1 About this Manual

This chapter provides information on the following topics:

## 1.1 This Manual's Target Group

This manual address system administrators who integrate optiClient in Microsoft Dynamics CRM 3.0 or 4.0 via its MS CRM integration.

With the installation described in this manual you can configure one of the following scenarios.

- New installation of an MS CRM integration in connection with a newly installed

    – Microsoft Dynamics CRM system version 3.0

    – Microsoft Dynamics CRM system version 4.0

- New installation of an MS CRM integration after an MS CRM upgrade from version 3.0 to version 4.0

- Upgrade of an MS CRM integration after an MS CRM upgrade from version 3.0 to version 4.0

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**Note:**
The installation for this scenario corresponds to the installation for the preceding scenario: New installation of an MS CRM integration after an MS CRM upgrade from version 3.0 to version 4.0.

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## 1.2 Manual Structure

The instructions on hand are divided into the following chapters:

**Chapter 1, "About this Manual"**

This chapter informs you about the structure and use of this documentation.

**Chapter 2, "Requirements"**

In this chapter you find all requirements that apply for the described installation.

**Chapter 3, "Overview of the MS CRM Integration"**

This chapter provides an overview of the features and the components of the optiClient MS CRM integration.

**Chapter 4, "Installing the MS CRM Integration"**

This chapter contains the setup description for integrating optiClient in Microsoft Dynamics CRM 3.0 or 4.0 with the MS CRM integration.

**Chapter 5, "Troubleshooting"**

In this chapter you learn how to fix common errors that may emerge during the MS CRM integration setup.

**Chapter 6, "Tracing"**

This chapter provides information about how to trace the MS CRM integration components.

**Chapter 7, "Possible MS CRM Integration Adjustments"**

This chapter presents MS CRM integration customizing options.

## 1.3 Representation Conventions

In this chapter you find information about the use of formatting conventions for the following areas:

- Warnings and additional Notes             from page 9
- Version Differentiation in the Installation     from page 10
- Texts                          from page 11.

## 1.3.1 Warnings and additional Notes

Warnings and additional notes are indicated in this manual in the following manner:

**Attention:**
This symbol signalizes high priority information. Please definitely heed such notes to avoid malfunctions, loss of data or damages to property.

**Note:**
Information worth knowing is found next to this symbol.

## 1.3.2 Version Differentiation in the Installation

Several of the described setup steps may only be executed for specific MS CRM versions or setup types. Such setup steps begin with the relevant version description for which you need to execute the respective setup step.

*Example:*
You may execute the following setup step for MS CRM version 4.0 only.

1. MS CRM 4.0:
   Move folder `C:\cycos\Crm\CallOut` to…

*Example:*
You may execute the following setup step only if you have performed an entirely new installation of the MS CRM 4.0 system. If you have upgraded the MS CRM 4.0 system from version 3.0 you must omit this step.

2. MS CRM 4.0 (new installation):
   Move folder `C:\cycos\Crm\CallOut` to…

If a setup step does not carry a version description, you need to execute it for all MS CRM versions.

### 1.3.3  Texts

In this manual we use the following representations to highlight selected texts:

Blue-highlighted

A text is blue-highlighted if it points to another passage in the manual as active cross reference.

`Courier` font

In Courier font we represent:

- Example of screen texts

- System entries

- System outputs

- File names.

Boldface

In Boldface we represent:

- Menu names

- Menu entries

- Dialog buttons

- Dialog field descriptions

- Buttons

- Tabs.

*<Texts in pointed brackets>*

A specification is represented in additional pointed brackets if it may have an individual content.

*Example:*

- The directory specification *<MS CRM-Install>*`\bin` describes the folder `bin` in the installation folder of the MS CRM system.

- The description *<address list>* represents e.g. the entries in an address list.

## 1.4 Acronyms Used

In this manual we use the following acronyms.

| | |
|---|---|
| CRM | Customer Relationship Management |
| GAC | Global Assembly Cache |
| IIS | Internet information services |
| MS CRM | Microsoft Dynamics CRM |
| SQL | Structured Query Language |

# 2 Requirements

This chapter provides information on the following topics:

## 2.1 Required License for the MS CRM Integration

So that the MS CRM integration can be used in optiClient, a corresponding license is required in the connected XPR server. You can obtain more detailed information on this from your sales partner.

## 2.2 Installation Personnel Requirements

The installation personnel must have sound knowledge in the following areas:

- optiClient administration

- Administration of Microsoft Dynamics CRM 3.0 respectively 4.0

- SQL server administration

- IIS manager operation.

## 2.3  Software and Hardware Requirements

The following operations assume

- that Microsoft Dynamics CRM 3.0 respectively 4.0 is fully functional after its installation and configuration In this case it does not matter whether Microsoft Dynamics CRM is an entirely new installation or an upgrade from version 3.0 to version 4.0.

- that the current optiClient version is fully functional after its installation and configuration.

  **Attention:**
  Before you install the current optiClient version you may have to uninstall an old program version first. The current optiClient version must not have been installed by a program update.

- that the installation personnel has administrative access to

  – the relevant operating systems

  – the SQL server

  – the IIS server

  – the Microsoft-Dynamics-CRM system

- that an operable TCP/IP connection exists between optiClient, the SQL server, the IIS server and Microsoft Dynamics CRM.

## 2.4  Installation Files

For the following operations you need different installation files. You find these files under the installation files of optiClient in the folder:

```
Administration\Crm.
```

## 2.5 Required Installation Information

For the following operations you need user accounts with specific privileges and some information about the installation environment.

**User Privileges**

- User account under Microsoft Dynamics CRM that may access the Microsoft Dynamics CRM dataset to read it.

**Information about the installation environment**

- Domain name to which the above Microsoft Dynamics CRM user account belongs

- Server computer name or IP address under which the Microsoft Dynamics CRM can be reached via HTTP

- International access code of the setup location
  (*Example:* 00 for Germany)

- Country code of the setup location
  (*Example:* 49 for Germany)

- Long distance access code of the setup location
  (*Example:* 0 for Germany)

- Area code of the setup location

- Subscriber number of the setup location.

**Requirements**

Required Installation Information

# 3 Overview of the MS CRM Integration

This chapter provides information on the following topics:

## 3.1 Features of the MS CRM Integration

The MS CRM integration of optiClient provides the user with the following functions:

- Dialing from the MS CRM Interface

- MS CRM Workflow

- Entity Search in MS CRM

- Phone Number Resolution via MS CRM.

**Dialing from the MS CRM Interface**

With the MS CRM integration, optiClient users may set up telephone connections from within their MS CRM interface. The user establishes such a telephone connection via a dial button, which is offered in the following windows of the MS CRM interface.

- Contact lists

- Account lists

- Opened contacts

- Opened accounts

- Opened call activities

- Opened addresses

- Opened campaigns.

When the user enables the dial button, the database fields that may contain phone numbers are evaluated for the selected entity[1]. All phone numbers determined in this way are then transferred to optiClient.

The phone connection is immediately set up after the phone number transfer if only one phone number is sent to optiClient. If several phone numbers are transferred to optiClient at the same time, the user may first see all available phone numbers in a selection dialog. In this case, the phone connection is not established until the user has selected the number to which optiClient is to set up the connection.

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1. In a CRM system the term entity describes a data object to be uniquely determined and to which information is assigned. For example, a contact or an account.

**MS CRM Workflow**

The MS CRM workflow is displayed in optiClient. It represents a context-dependent compilation of different entities that are assigned to a phone connection in optiClient. Such entities comprise, for example, contacts or accounts.

Furthermore, context-dependent actions can be triggered in the MS CRM server via the MS CRM workflow – for example, creating a new contact after a new call arrived in optiClient.

**Note:**
The MS CRM workflow is always represented in optiClient in the language in which the MS CRM server is installed.

**Note:**
To display the MS CRM workflow in optiClient, the Internet Explorer must be present on the user PC.

**Entity Search in MS CRM**

With the MS CRM integration optiClient users can look for entities in the MS CRM server information. Found entities can be copied to the contact directory respectively contact list of optiClient.

**Note:**
The entity search is exclusively performed via the customer data of the MS CRM server. Data of MS CRM users are not considered for the entity search.

**Phone Number Resolution via MS CRM**

With MS CRM integration, optiClient can resolve phone numbers in names based on the dataset of the MS CRM server; for example, when a new call arrives in optiClient. This requires at least one entity to be available in the MS CRM server that the MS CRM integration can assign to the phone number to be resolved.

The MS CRM integration uses a fuzzy search algorithm for the phone number resolution. This search algorithm ensures that entities can be found for a phone number even if an individual extension of a phone connection does not exist in the data of the MS CRM server, but the associated central connection with the extension 0.

The search algorithm will consecutively cut off single digits of the phone number searched for as long as the search is without success, and attach digit 0 to the shortened phone number. Subsequently, the search for this modified phone number starts anew.

*Example:*
A call with phone number +49 2404 901-123 arrives in optiClient. The phone number is to be resolved via the MS CRM integration.
The dataset of the MS CRM server does not include an entity that contains the phone number to be resolved. There is solely an entity with the phone number +49 2404 901-0 – the associated central connection. This entity is to be found in the scope of phone number resolution for the incoming call.

The fuzzy search algorithm operates as follows:

1. The search algorithm looks for the original phone number +49 2404 901-123. This phone number is not available in the dataset of the MS CRM server. Consequently, the search fails.

2. The search algorithm cuts off the last digit of the phone number and replaces it with 0.

3. The search algorithm now looks for the phone number +49 2404 901-120. This phone number is not available in the dataset of the MS CRM server either. The search fails again.

4. The search algorithm cuts off another digit of the phone number and replaces all cut digits with a 0 altogether.

5. The search algorithm now looks for the phone number +49 2404 901-10. This phone number is not available in the dataset of the MS CRM server either. The search fails again.

6. The search algorithm cuts off another digit of the phone number and replaces all cut digits with a 0 altogether.

7. The search algorithm now looks for the phone number +49 2404 901-0. This phone number is available in the dataset of the MS CRM server. The phone number resolution delivers the desired entity.

---

**Note:**
The work habits of the fuzzy search algorithm can be adjusted to individual requirements in the configuration file `crm.config`. For this purpose serve the settings <MaxDigitsCutForFuzzyLookup> and <SuffixForFuzzyLookup>.
See Section 4.2, "Adjusting the crm.config configuration file", on page 33.

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## 3.2 Components of the MS CRM Integration

The following figure provides an overview of the components used for the MS CRM integration of optiClient, and where they are positioned in the solution environment.
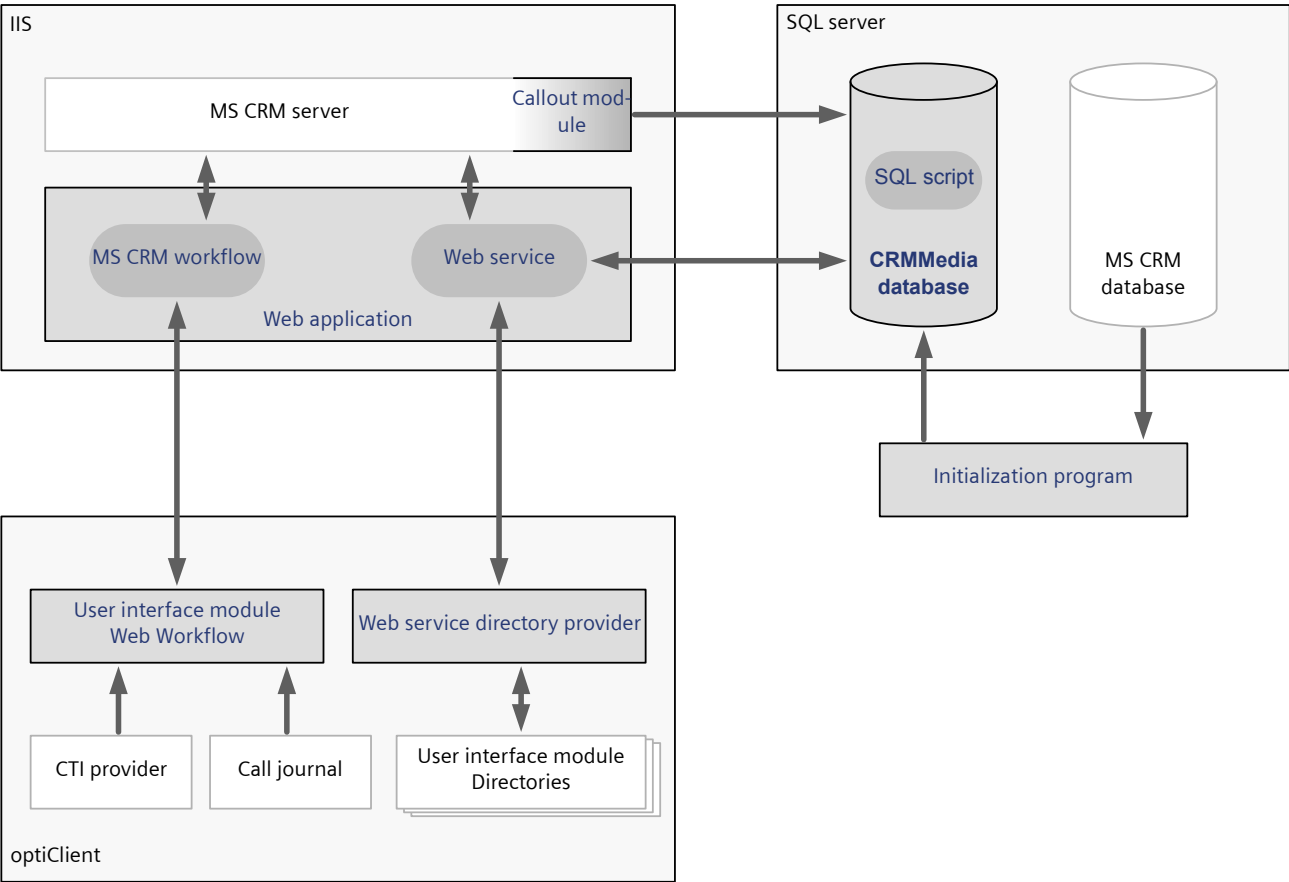


The single components of the MS CRM integration serve the following purposes.

**Callout module**

The callout module is active in the MS CRM server context and watches constantly whether a user in the MS CRM server

- creates a new phone number

- modifies an existing phone number

- deletes an existing phone number.

In such an event,

- the module normalizes the new or modified phone number and stores it in this format in the CRMMedia database respectively

- the module removes the deleted phone number from the CRMMedia database.

**CRMMedia database**

CRMMedia is a database of the SQL server. In this database the MS CRM integration administers the phone numbers in normalized format, which are stored in the MS CRM server. Via a CRMMedia database query the web service can determine which MS CRM entities have been assigned a given phone number.

**Initialization program**

The initialization program accesses phone numbers stored in the MS CRM server. The program normalizes the phone numbers and stores them along with the associated entity ID in the CRMMedia database.

The initialization program is usually executed once during the MS CRM integration installation to transfer the stock of phone numbers of the MS CRM server to the CRMMedia database.

### MS CRM workflow

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**Note:**

The MS CRM workflow is always represented in optiClient in the language in which the MS CRM server is installed.

---

The MS CRM workflow is a web page in the IIS, which is invoked and displayed by optiClient. The workflow represents a context-dependent compilation of different MS CRM entities that are assigned to a phone connection in optiClient. Such entities comprise, for example, contacts or accounts.

Furthermore, context-dependent actions can be triggered in the MS CRM server via the MS CRM workflow – for example, creating a new contact after a new call arrived in optiClient.

### User interface module Web Workflow

The optiClient user interface module Web Workflow displays in optiClient the web page MS CRM Workflow. The display of the MS CRM workflow can be controlled by call information from the CTI provider and by entries in the call journal.

### Web service directory provider

The optiClient web service directory provider accesses the web service to resolve phone numbers and to look for MS CRM entities. Beyond that, it communicates with different other optiClient modules. For example, it copies search criteria from the Directories user interface module, where they are entered by the optiClient user.

### SQL script

The SQL script creates a defined table structure in the CRMMedia database. It is executed manually.

**Web application**

The web application provides optiClient with the following MS CRM integration services.

- MS CRM workflow

- Web service.

**Web service**

The web service is configured in the IIS as web application. It enables the following MS CRM integration services and provides them for optiClient as web application.

- Entity search

- Phone number resolution.

To look for an entity in the MS CRM server dataset, the user specifies in optiClient the desired search criteria. These search criteria are subsequently transferred to the MS CRM server via the web service directory provider and the web service. The MS CRM server then performs the search and sends the results back to optiClient via the web service and web service directory provider.

To resolve a phone number, optiClient transfers the relevant phone number in normalized format to the web service via the web service directory provider. The web service then determines via the CRMMedia SQL database to which MS CRM entities the relevant phone number is assigned. The web service retrieves the data of these entities from the MS CRM server and sends them to optiClient via the web service directory provider.

# 4 Installing the MS CRM Integration

This chapter provides information on the following topics:

## 4.1 Installation Overview

The following figure provides a first overview of the steps you need to perform for the MS CRM integration installation.

**①** Preparations

**②** Configuring the Phone Number Normalization

**③** Configuring the Web Application

**④** Integrating the Dial Button

**⑤** Configuring cyPHONE
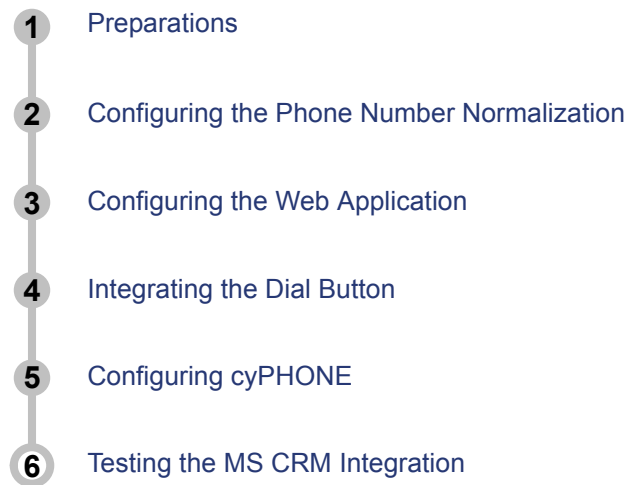
**⑥** Testing the MS CRM Integration

## 4.2 Preparations

Before you can start the MS CRM integration installation, you need to perform the following preparations:

- Copying installation files

- MS CRM 4.0: Adjusting the callout.config.xml configuration file

- MS CRM 4.0: Adjusting the Cycos.Crm.Callout.dll.config configuration file

- MS CRM 4.0:   Moving configuration files for the Callout module

- Adjusting the crm.config configuration file

- MS CRM 4.0: Releasing URL parameter transfer.

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Configuring the Web Application

Integrating the Dial But-ton

Configuring cyPHONE

Testing the MS CRM Integration

Preparations

**Copying installation files**

During the MS CRM integration installation, configuration files are deployed that use preconfigured directory paths. You should therefore store all installation files under a specific installation folder. Proceed as follows:

1. Create the following folder on the MS CRM server:

   `C:\cycos.`

2. Access the following folder of the optiClient installation files:

   `cyPHONE\Administration.`

3. Copy the folder `Crm` contained therein with all its files and directories to the new directory:

   `C:\cycos.`

---

**Note:**
If you store the installation files in a folder different from `C:\cycos`, you need to manually adapt preconfigured configuration files.
The installation instructions will point to this when appropriate.

---

Preparations — Configuring the Phone Number Normalization — Configuring the Web Application — Integrating the Dial Button — Configuring cyPHONE — Testing the MS CRM Integration

**MS CRM 4.0:**
**Adjusting the `callout.config.xml` configuration file**

In the `callout.config.xml` configuration file you determine individual basic settings for the Call-Out module. How to adjust the settings of the `callout.config.xml` configuration file:

1. Open the `callout.config.xml` configuration file with a text editor.

   You find this configuration file in the folder:

   `C:\cycos\Crm\CallOut.`

2. How to change the file's content.

   Replace

   `C:\Cycos\crm\Callout\Cycos.Crm.Callout.dll`

   with

   `Cycos.Crm.Callout.dll.`

3. Save the modifications in the file and close it.

You have thus adjusted the content of the `callout.config.xml` configuration file for the installation.

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**MS CRM 4.0:**
**Adjusting the `Cycos.Crm.Callout.dll.config` configuration file**

In the `Cycos.Crm.Callout.dll.config` configuration file you determine individual settings for the Call-Out module. How to adjust the settings of the `Cycos.Crm.Callout.dll.config` configuration file:

1. Open the `Cycos.Crm.Callout.dll.config` configuration file with a text editor.

   You find this configuration file in the folder:

   `C:\cycos\Crm\CallOut`.

2. How to change the file's content.

   Replace

   `<add key="CrmConfigFile" value="../config/crm.config"/>`

   with

   `<add key="CrmConfigFile" value="C:/cycos/Crm/config/`
   `crm.config"/>`.

3. Save the modifications in the file and close it.

You have thus adjusted the content of the `Cycos.Crm.Callout.dll.config` configuration file for the installation.

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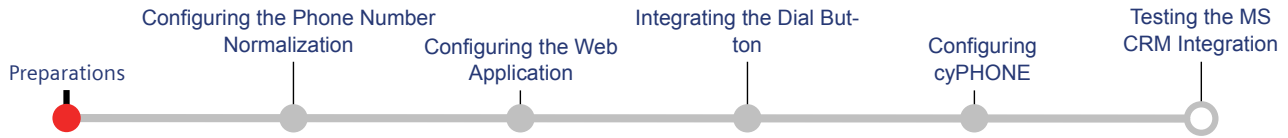
MS CRM 4.0:
**Moving configuration files for the Callout module**

Several files for the Callout module must be stored in the Assembly directory of
the MS CRM server for MS CRM 4.0. Proceed as follows:

1. On the computer system of the MS CRM server switch to the
   `C:\cycos\Crm\CallOut` directory.

2. Move the following files to the
   *<MS CRM-Install>*`\server\bin\assembly` directory.

   - `Cycos.Crm.Base.dll`

   - `Cycos.Crm.Base.XmlSerializers.dll`

   - `Cycos.Crm.Callout.dll`

   - `Cycos.Crm.Callout.dll.config`

   - `Cycos.Crm.Telephony.dll`

   - `log4net.dll`

   These are all files of this folder except for `callout.config.xml.`

You have now stored the selected files of the Callout module in the appropriate
place of the MS CRM server. We will take care of the remaining
`callout.config.xml` file at a later date.

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**Adjusting the `crm.config` configuration file**

In the `crm.config` configuration file individual basic settings are specified for the installation environment. How to adjust the settings of the `crm.config` configuration file:

1. Open the configuration file `crm.config` with a text editor.

   You find this configuration file under the installation files in the folder:

   `crm\config`.

2. In the configuration file adjust the following bold-highlighted settings to your installation environment:

> **Note:**
> If you modify the parameters of the `crm.config` after the MS CRM integration installation, you need to restart the web site Microsoft CRM on the IIS server to activate the modified settings.

```
<?xml version="1.0" encoding="UTF-8"?>
<Configuration>

    <!-- access to CRM server -->
    <CrmBaseUrl>http://[192.168.0.6]:5555/</CrmBaseUrl>
    <CrmMajorVersion>3</CrmMajorVersion>
    <User>[Administrator]</User>
    <Password>[pass@word1]</Password>
    <Domain>[crmdomain]</Domain>

    <!-- SQL database connection string -->
    <CRMMediaConnectionString>server=(local);uid=;pwd=;Trusted_Connection=yes;database=[CRMMedia]
    </CRMMediaConnectionString>

    <!-- parameters for phone number normalization -->
    <InternationalAccessCode>[00]</InternationalAccessCode>
    <CountryCode>[49]</CountryCode>
    <LongDistanceAccessCode>[0]</LongDistanceAccessCode>
    <AreaCode>[???]</AreaCode>
    <NetworkAccessCode>[???]</NetworkAccessCode>
    <SubscriberNumber>[???]</SubscriberNumber>

     <!-- parameters for fuzzy number lookup -->
    <MaxDigitsCutForFuzzyLookup>5</MaxDigitsCutForFuzzyLookup>
    <SuffixForFuzzyLookup>0</SuffixForFuzzyLookup>

</Configuration>
```
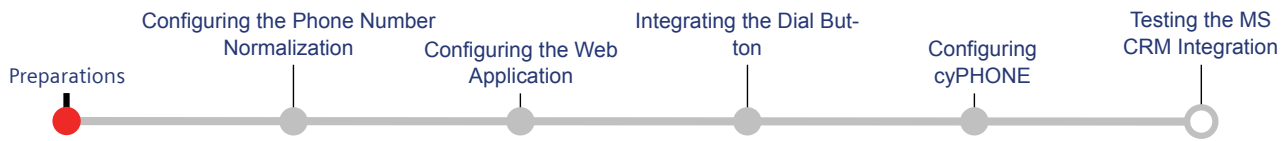
The parameters of the `crm.config` configuration file have the following meaning:

| <!-- access to CRM server --> | |
|---|---|
| <CrmBaseUrl> | Specifies the server computer name or IP address under which the MS CRM application can be reached via HTTP.<br>These are not necessarily all names or IP addresses used by the server computer. The specification within the IIS is all that matters. |
| <CrmMajorVersion> | Specifies the MS CRM Dynamics version used. |
| <User> | Specifies the user account under which the initialization program `Cycos.Crm.FillDatabase.exe` accesses the phone numbers in the MS CRM server. This user must therefore be privileged to read the phone numbers in the MS CRM server.<br>Cf. Section 4.3, "Normalizing existing phone numbers", on page 42. |
| <Password> | Specifies the password used for logging on with the specified user account <User>. |
| <domain> | Determines the domain to which the specified user account <User> belongs. |

Table 1            *Parameters of the crm.config (Access to the MS CRM Server)*

| <!-- SQL database connection string --> | |
|---|---|
| <CRMMediaConnectionString> | Specifies the connection string with which the initializing program accesses the database CRMMedia of the SQL server.<br>For access to the database CRMMedia the Windows authentication is used by default.<br>Cf. Section 4.3, "Normalizing existing phone numbers", on page 42. |
| Database | Specifies the name of the SQL database in which the MS CRM integration stores phone numbers in normalized phone number format.<br>The database name CRMMedia is used by default. |

Table 2            *Parameters of the crm.config (Connection String for SQL Server)*

| <!-- parameters for phone number normalization --> | |
|---|---|
| <InternationalAccessCode> | Specifies the international access code that is valid for the setup location.<br>This prefix must be dialed to establish a phone connection that leaves the German telephone network.<br>*Example:* For Germany this is the international prefix 00. |
| <CountryCode> | Specifies the country code that is valid for the setup location.<br>*Example:* For Germany this is the country code 49. |
| <LongDistanceAccessCode> | Specifies the long distance access code that is valid for the setup location.<br>This prefix must be dialed to establish a phone connection that leaves the local area network.<br>*Example:* For Germany this is the long distance access code 0. |

Table 3            *Parameters of the crm.config (Parameters for Phone Number Normalization)*

Preparations — Configuring the Phone Number Normalization — Configuring the Web Application — Integrating the Dial Button — Configuring cyPHONE — Testing the MS CRM Integration
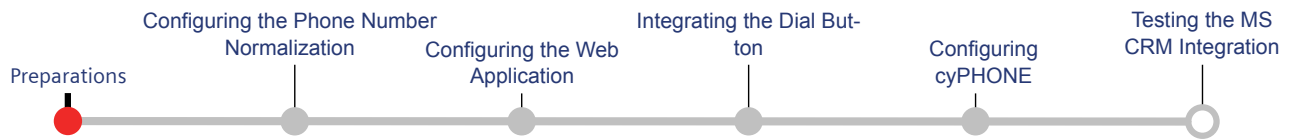
| <!-- parameters for phone number normalization --> | |
|---|---|
| <AreaCode> | Specifies the area code without leading 0 that is valid for the setup location.<br>*Example:* For Alsdorf this is the area code 2404. |
| <NetworkAccessCode> | If users specified a network access code while entering the phone number in the MS CRM system, this code must be indicated in this parameter. |
| **Attention:** | If you specify a digit for this parameter, all phone numbers in the MS CRM system must have been entered with this digit. If this is not the case, the phone numbers of the MS CRM system will be normalized wrongly. |
| <SubscriberNumber> | Specifies the subscriber number that is valid for the setup location. |

*Table 3          Parameters of the crm.config (Parameters for Phone Number Normalization)*

| <!-- parameters for fuzzy number lookup --> | |
|---|---|
| <MaxDigitsCutForFuzzyLookup> | Specifies the maximum number of digits the fuzzy search algorithm cuts off of a phone number to be resolved. If the relevant phone number could not be resolved until then, the search algorithm terminates the phone number resolution without result.<br>Cf. Section 3.1, "Phone Number Resolution via MS CRM", on page 20.<br>*Default setting:* 5 |
| <SuffixForFuzzyLookup> | Specifies, with which digit the fuzzy search algorithm replaces the cut-off phone number portion.<br>Cf. Section 3.1, "Phone Number Resolution via MS CRM", on page 20.<br>*Default setting:* 0 |

*Table 4          Parameters of the crm.config (Parameters for Phone Number Normalization)*

3. MS CRM 4.0:

Change the setting for <CrmMajorVersion> from 3 to 4.

You have now specified the individual basic settings for the installation environment.

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**MS CRM 4.0:**
**Releasing URL parameter transfer**

In version 4.0 the MS-CRM server blocks URL parameters that optiClient transfers.

How to release the transfer of the relevant URL parameters.

1. Start the registry editor on the computer system of the MS-CRM server.

2. Switch to the registry key:

   HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\MSCRM

3. Assign entry 1 to the DisableParameterFilter value.

   If this value does not exist yet, create it beforehand.

You have now released the transfer of URL parameters.

The preparations for the MS CRM integration installation are thus complete. You can now continue with the following setup steps.

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## 4.3 Configuring the Phone Number Normalization

So that phone numbers can be efficiently resolved via the MS CRM server dataset, the MS CRM integration converts all phone numbers stored in the MS CRM server into the so-called normalized phone number format. The MS CRM integration then stores the phone numbers created in this way in an individual SQL database.

How to configure the phone number normalization:

- Configuring an SQL database

- Configuring the automatic phone number normalization

- Normalizing existing phone numbers.
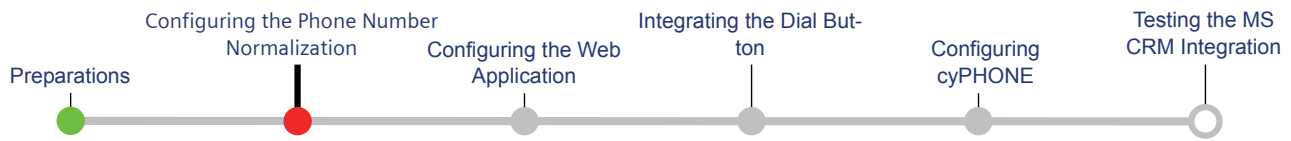
**Configuring an SQL database**

First, configure a new SQL database in the SQL server, in which the normalized phone numbers will later be stored.

---

**Note:**
You need to execute the following steps under a user account that has administrative privileges for the SQL server.

---

How to configure the SQL database:

1. Open the management studio for the Microsoft SQL server 2005.

2. On the SQL server create a new SQL database named:

   *CRMMedia*.

---

**Note:**
If you want to assign another name to the SQL database, you need to adjust the entry under database in the configuration file `crm.config` accordingly. See Section 4.2, "Adjusting the crm.config configuration file", on page 33.

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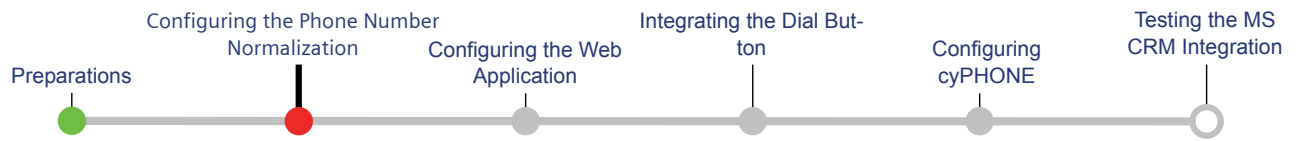
3. Execute the following script in the new SQL database *CRMMedia*:

   `Create_UniformTelecomNumberBase.sql.`

   You find this script under the installation files in the folder:

   `Crm\SQL Scripts.`

   The script creates a table in the SQL database *CRMMedia*, in which the MS CRM integration will later store the normalized phone numbers.

4. Via the access privileges authorize all MS CRM users to read and modify the content of the SQL database *CRMMedia*.

You have thus created and configured the new database *CRMMedia*.

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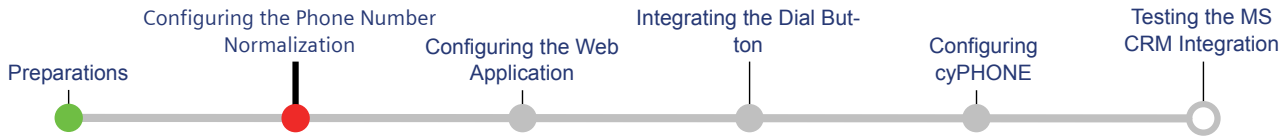
**Configuring the automatic phone number normalization**

To automatically bring the phone numbers of the MS CRM server into the normalized phone number format and store them in the new SQL database *CRMMedia*, the MS CRM integration uses the callout module.

How to install the callout module:

---

**Attention:**

The callout module accesses the MS CRM server with the user account you have specified in the configuration file `crm.config` (cf. Section 4.2, "Adjusting the crm.config configuration file", on page 33). This user must therefore be privileged to read the relevant phone numbers in the MS CRM server.

---

1. Check whether the following folder of the MS CRM server already contains a file named `callout.config.xml`:

   *<MS CRM-Install>*`\server\bin\assembly`.

   • If this file is not available yet, move the configuration file `callout.config.xml` of the MS CRM integration into the described folder.

     You find this file in the folder:

     `C:\cycos\Crm\CallOut`.

   • If this file is already available, attach the content of the configuration file `callout.config.xml` of the MS CRM integration to the existing file `callout.config.xml` of the folder `\assembly\`.

     You find this file in the folder:

     `C:\cycos\Crm\CallOut`.

---

**Note:**

MS CRM 3.0:

If you did not previously store the installation files in the folder `c:\cycos`, you need to adjust the path of all expressions "C:\Cycos\crm\Callout\Cycos.Crm.Callout.dll" in the configuration file `callout.config.xml` accordingly.

---

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2. Delete the now empty folder `C:\cycos\Crm\CallOut`.

3. MS CRM 4.0 (new installation):
   If you have upgraded the MS CRM 4.0 system from version 3.0, you can omit this step.

   If you have performed an entirely new installation of the MS CRM 4.0 system, start the MS CRM system setup and repair the existing MS CRM installation. This reparation registers the `Microsoft.Crm.Platform.Callout.Base.dll` file with the GAC.

4. Restart the web site Microsoft CRM on the IIS server to activate the callout module.

You have thus configured the automatic phone number normalization.

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**Normalizing existing phone numbers**

The callout module only stores those normalized phone numbers in the new SQL database *CRMMedia* that are newly created or modified in the MS CRM server after the callout module installation. In most cases, however, an MS CRM server holds already existing phone numbers that also need to be normalized.

How to transfer already existing phone numbers to the new SQL database *CRMMedia* in normalized format:

**Attention:**

The initialization program accesses the MS CRM server with the user account you have specified in the configuration file `crm.config` (cf. Section 4.2, "Adjusting the crm.config configuration file", on page 33). This user must therefore be privileged to read the relevant phone numbers in the MS CRM server.

**Attention:**

The initialization program accesses the database CRMMedia of the SQL server with the Windows authentication. Therefore, you need to be logged in on the computer system with a user account that has write privileges for the SQL database CRMMedia.

If you do not want to use the access via the Windows authentication, you need to adjust the content of the `<CRMMediaConnectionString>` tag in the configuration file `crm.config` accordingly (cf. Section 4.2, "Adjusting the crm.config configuration file", on page 33).

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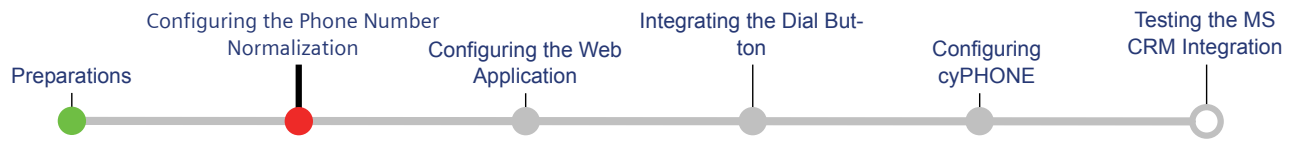
1.  Start the initialization program:

    `Cycos.Crm.FillDatabase.exe.`

    You find the initialization program under the installation files in the folder:

    `Crm\Tools.`

    A program window opens the text fields of which have already been filled in by the settings in the configuration file `crm.config`.

2.  Verify that the information in the text fields is correct.

3.  Select `Start`.

    The program normalizes the phone numbers that already exist in the MS CRM server at this time and stores them in the new SQL database *CRMMedia*. Depending on the available amount of available phone numbers, this may take a while.

    As soon as the normalization of the existing phone numbers is complete, a corresponding message is issued in the output section of the program window.

4.  In the SQL server open the new SQL database *CRMMedia*. The SQL database should now contain the already existing phone numbers in normalized format.

You have thus transferred the phone numbers that already exist in the MS CRM server to the new SQL database in normalized format.

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## 4.4 Configuring the Web Application

The MS CRM integration provides optiClient with its various services as web application.

How to configure this web application:

- Installing the web application

- Configuring the provision of the connection-related data

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**Installing the web application**

**Note:**
You need to execute the following steps under a user account that has administrative privileges for the IIS server.

How to install the web application for the services of the MS CRM integration in the IIS server:

1.  Open the IIS manager.

2.  Select the following web site:

    MS CRM 3.0: *Microsoft CRM v3.0*

    MS CRM 4.0: *Microsoft Dynamics CRM*

3.  Create a new virtual directory for the web site. In doing so use

    *   Alias: *cycos*

    *   Path: *C:\cycos\crm\web*.

        **Note:**
        If you did not previously store the installation files in the folder `c:\cycos,` you need to adjust this part of the directory path accordingly.

    *   Permissions: Read

    *   Executive Permissions: Script only

    *   Application Pool: *<Application pool of the MS CRM server>*

    *   ASP.NET version

        – MS CRM 3.0: 1.1

        – MS CRM 4.0: 2.0

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4. MS CRM 4.0:
   Execute the following command on the MS CRM server to manually add the assembly `Microsoft.Crm.Webservices.dll` to the GAC.

   ```
   gacutil /i Microsoft.Crm.Webservices.dll
   ```

   ---

   **Attention:**

   If you do not have installed a .NET-Framework SDK 2.0 with the MS CRM server, you cannot add the assembly to the GAC via the `gacutil` command. In this case copy the `Microsoft.Crm.Webservices.dll` file from the *MS CRM-Install>*`\setup` directory to `C:\Windows\Assembly`.
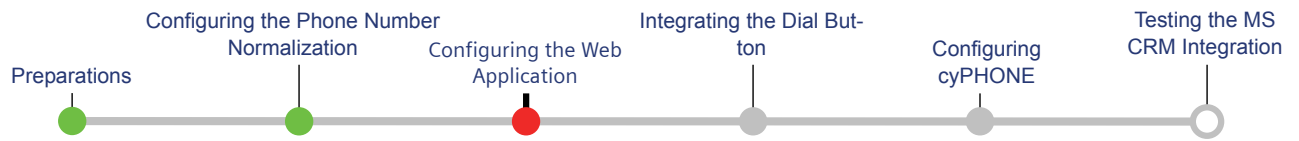
   ---

5. Invoke the following address in a browser to test the newly created web application:
   `http://`*<MS CRM-Server>*`:`*<port>*`/cycos/configcheck.aspx.`

   The configuration page of the MS CRM integration should be displayed without error message.

You have thus successfully installed the web application for the MS CRM workflow.

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**Configuring the provision of the connection-related data**

You can create context-depending telephone activities in the MS CRM workflow
of the MS CRM system. In this process, call-related information can already be
automatically copied to the entry form of the new telephone activity.

**Note:**
You need to execute the following steps under a user account that has
administrative privileges for the MS CRM system.

How to configure the automatic copying of call-related information:

1.  Start the MS CRM application and select Settings > Customization >
    Customize Entities.

2.  Select the entity Phone Call with a doubleclick.

3.  In the now open window Entity: Phone Call select in the details Forms and Views.

4.  Select Form with a doubleclick.

5.  In the now open window Form: Phone Call select the activity Form Properties.

6.  In the now open window Form Properties select the event OnLoad and click on Edit.

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7.  In the now open window Event Detail Properties select the option Event is enabled.

8.  Attach the content of the file `phonecall_onload.txt` to the script that may already exist.

    You find this file `phonecall_onload.txt` among the installation files in the folder:
    `Crm\config`.

9.  Switch to the Dependencies tab and move the following fields to Dependent fields.

    - Sender
    - Regarding
    - Duration
    - Recipient

    - Due
    - Direction
    - Phone Number

10. Copy the settings with:

    – OK

    – OK in the window Form Properties

    – Save and Close in the window Form: Phone Call.

11. In the menu of the window Entity: Phone Call select the entry Actions > Publish.

You have thus configured the automatic copying of call-related information.

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## 4.5 Integrating the Dial Button

So that MS CRM users can dial from their MS CRM user interface, the MS CRM integration provides a dial button in various windows of the MS CRM user interface.

**Note:**
You need to execute the following steps under a user account that has administrative privileges for the MS CRM system.

How to integrate the dial button in the MS CRM user interface:

- Saving the customization.xml configuration file

- Adjusting the MS CRM user interface

- MS CRM 3.0: Activating modifications to the MS-CRM user interface

- MS CRM 4.0: Activating modifications to the MS-CRM user interface.

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**Saving the `customization.xml` configuration file**

To integrate the dial button in the MS CRM user interface, you will later supplement the content of the `customization.xml` configuration file in the MS CRM server. So that you can restore the original settings in case of an error, you need to create a backup copy of the configuration file.

How to create a backup copy of the `customization.xml` configuration file.

1.  Start the MS CRM application and select Settings > Customization >
    Export Customization.

2.  Export the current configuration file `customization.xml` via the export
    option Export All Customizations.

3.  Save the configuration file in a secure storage location.

You have thus created a backup copy of the `customization.xml` configuration file.

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**Adjusting the MS CRM user interface**

In this section you supplement in the MS CRM server the content of the `customization.xml` configuration file. You use an automated mechanism for this purpose. When pointed out, you can leave this mechanism if you want to manually supplement modifications.

How to integrate the dial button in the MS CRM user interface.

1. Invoke the following address in a browser:

   `http://<MS CRM-Server>/cycos/configcheck.aspx.`

   A configuration page of the MS CRM integration is displayed.

2. Load the configuration file `customization.xml` via the download link of the configuration page and save the file in an arbitrary folder.

   **Note:**
   While it is being downloaded the `customization.xml` configuration file is dynamically generated by the configuration page and contains environment-dependent contents.

   **Note:**
   If you do not want to supplement the modifications in the configuration file `customization.xml` automatically but manually:
   Compare the configuration file you have just downloaded with a copy of your previously created backup copy. Transfer the automatically generated supplements manually to the copy of your backup copy.

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3.  Start the MS CRM application and select Settings > Customization > Import Customization.

---

**Attention:**

Save the configuration file customization.xml before you modify it. Cf. Section 4.5, "Saving the customization.xml configuration file", on page 50.

---

4.  Import the configuration file that you have just loaded and locally saved via the configuration page. Use the import option Import All Customizations.

---

**Note:**

If you have supplemented the modifications in the configuration file customization.xml manually:
Import the configuration file to which you have manually copied the required modifications.

---

You have thus added the dial button to the MS CRM user interface.

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MS CRM **3.0:**
**Activating modifications to the MS-CRM user interface**

After you have added the dial button to the MS CRM user interface, you need to activate its display. How to proceed for MS CRM Dynamics 3.0:

1.  Open the configuration file `web.config` of the MS CRM server in a text editor.

    You find this configuration file with Microsoft Dynamics CRM 3.0 Professional under:

    `C:\inetpub\wwwroot` by default.

    > **Note:**
    > If the configuration file `web.config` is in your installation not available in the specified directory, look for the file with the file explorer. From the search hits then select the configuration file associated to the MS CRM directory.

2.  In the configuration file look for the value ISVIntegration in the file section appSettings.

3.  Define for the ISVIntegration value the entry All.

    > **Note:**
    > The configuration file itself contains a detailed description of the possible settings for this value.

4.  Save the modification in the configuration file `web.config`.

5.  Assign the ISV Extensions privilege to the security rolls of all MS CRM users to see the dial button.

You have now activated the dial button for MS CRM 3.0 in the MS CRM user interface for the relevant MS CRM users.

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**MS CRM 4.0:**
**Activating modifications to the MS-CRM user interface**

After you have added the dial button to the MS CRM user interface, you need to activate its display. How to proceed for MS CRM Dynamics 4.0:

1. Start the MS CRM application and select
   Settings > Administration > System Settings.

2. Switch to the Customization tab and configure the setting Custom menus and toolbars.

3. Assign the ISV Extensions privilege to the security rolls of all MS CRM users to see the dial button.

You have now activated the dial button for MS CRM 4.0 in the MS CRM user interface.

All installation steps on the server side are thus complete. In the next section continue with the optiClient configuration.

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## 4.6 Configuring cyPHONE

You need to make settings in optiClient for the MS CRM integration. Perform the
following steps:

- Creating a web service directory

- Configuring the web workflow

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**Creating a web service directory**

To access the information of the MS CRM server you need to create a web service directory in optiClient that accesses the MS CRM server.

---

**Attention:**
optiClient retrieves data from a web service directory mostly via Internet connections. This retrieval may take some time if a large amount of data is read out of web service directories, or the Internet connection provides only relatively little transmission bandwidth.
Consequently, phone number resolution in optiClient may occur somewhat delayed, or an inadequately dimensioned Internet connection may temporarily be overloaded.

---

How to create a web service directory:

1. Start optiClient and open the program settings via the logon dialog.

2. Switch to the settings tab Provider Modules.

3. Add the provider module Web Service Directory Provider to the configuration if it is not listed among the added modules yet.

4. Select under the provider module Web Service Directory Provider > WS-Directories.

5. Select the ⏷ icon in the Add button and then the Create MS CRM configuration entry in the opening menu.

   A new configuration dialog opens.

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6. Enter under URL the host URL of the MS CRM servers inclusive port number and confirm the entry with OK.

*Example:* http://CrmServer.company.com:5555

The directory list displays a new entry named Microsoft CRM .

7. Verify that the new web service directory is active.

---

**Note:**
The web service directory must authenticate at the MS CRM server is case of requests. For this purpose it uses the Windows user authentication under which the optiClient user has logged in to his/her user PC.
Therefore, the optiClient user must log on to his/her user PC under a user account that is authorized to access the information of the MS CRM server.

---

You have thus created the web service directory via which optiClient users may later e.g. look in the MS CRM server for entities.

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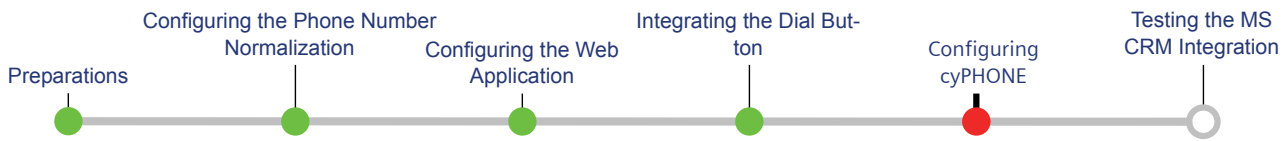
**Configuring the web workflow**

A central function element of the MS CRM integration is the MS CRM workflow in optiClient. This MS CRM workflow is realized as web application in the IIS and enables in optiClient the web-based access to information of the MS CRM server.

Furthermore, context-dependent actions can be triggered in the MS CRM server via the MS CRM workflow – for example, creating a new contact after a new call arrived in optiClient.

How to configure the web workflow for the MS CRM workflow in optiClient.

1.  In the optiClient Settings dialog switch to the User Interface Modules tab.

2.  Add the user interface module Web Workflow to the configuration if it is not listed among the added modules yet.

3.  Select under the user interface module Web Workflow > Configuration.

4.  Select the ▾ icon in the Add button and then the Create MS CRM workflow entry in the opening menu.

    A new configuration dialog opens.

5.  Check the already preconfigured host URL of the MS CRM server and confirm with OK.

    The web workflow list displays a new entry named Microsoft CRM.

6.  Select the web workflow Microsoft CRM in the web workflow list and click on Edit.

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7. Customize the settings in the Open the Web Workflow window automatically ... section.

8. Confirm your settings with OK.

9. Verify that the web workflow Microsoft CRM is activated in the web workflow list.

10. Copy the settings with OK.

11. Start optiClient.

Now you have configured the web workflow for the MS CRM workflow.

You have thus completed all MS CRM installation steps. In the following section we will test the MS CRM integration function.

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## 4.7  Testing the MS CRM Integration

Testing the installed MS CRM integration is divided into the following sections:

- Testing the entity search

- Testing the phone number resolution

- Testing the dial button

**Testing the entity search**

How to test the entity search via the MS CRM integration:

1. Start optiClient and open the program settings via the logon dialog.

2. Switch to the Provider Modules tab.

3. Select Web Service Directory Provider > WS Directories.

4. Select the web service directory MS CRM.

---
**Note:**
If you have assigned a different name to the associated web service directory during the MS CRM integration, select the according entry instead.

---

5. Select Edit.

6. In the configuration dialog of the web service directory switch to the Search tab.

7. Select Test.

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8. Select under Search Criterion e.g. the entry LastName and enter under Value the second name of a contact created in the MS CRM server.

   To specify additional conditions that narrow down the search, define further values for other search criteria. Supported search criteria are:

   • Last Name

   • First Name

   • Full Name

   • Business Phone

   • Mobile Phone

   • Home Phone

   • E-mail

9. Select Start Test.

   The output window displays:

   • Trace information about the search process

   • Information about the contact search for.

   In case of an error, the output finishes with an error message that clearly points to the functional error.

   The entity search works smoothly.

---

**Note:**
The entity search may fail with the output window displaying the following error message:
The underlying connection was closed: Unknown error on receiving.
See in this case Section 5.1, "Error Message: Unknown Error on Receiving", on page 65).

---

**Testing the phone number resolution**

How to test the phone number resolution via the MS CRM integration:

1. In the configuration dialog of the web service directory MS CRM switch to the Lookup tab.

2. Select Test.

3. Enter under Value a phone number specified in the MS CRM server for a contact. In doing so, use the normalized phone number format – such as +492404901100.

4. Select Start Test.

   The output window displays:

   • Trace information about the phone number resolution

   • Information about the contact to whom the specified number is assigned.

   In case of an error, the output finishes with an error message that clearly points to the functional error.

   The phone number resolution works smoothly.

---

**Note:**

The entity search may fail with the output window displaying the following error message:

The underlying connection was closed: Unknown error on receiving.

See in this case Section 5.1, "Error Message: Unknown Error on Receiving", on page 65).

---

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**Testing the dial button**

How to test the dial button function in the MS CRM user interface:

1. Log on to the user PC as MS CRM user who is authorized to use the button in the MS CRM user interface. Cf. Section 4.5, "MS CRM 3.0: Activating modifications to the MS-CRM user interface", on page 53.

2. Start optiClient so that it is operable.

3. Open the MS CRM user interface in your browser.

4. Open a CRM contact whose CRM contact data feature two phone numbers – e.g. business and mobile.

5. Click on the dial button ⊚ in the toolbar of the opened contact.

   A selection dialog opens that displays the phone numbers specified for the opened contact.

6. Select one of the offered phone numbers and click on Call.

   optiClient establishes a connection to the selected phone number.

The dial button works smoothly.

The MS CRM integration installation is operable.

# 5 Troubleshooting

In this chapter you find instructions on how to rectify the following known errors.

- Error Message: Unknown Error on Receiving

If the following information does not help to solve the described problems or other problems occur while you install the MS CRM integration, please consult the system integrator in charge.

## 5.1 Error Message: *Unknown Error on Receiving*

The entity search may fail with the output in the test window of the web service directory provider finishing with the following error message:

The underlying connection was closed:
Unknown error on receiving.

How to rectify this error:

1. Open the following optiClient configuration file in a text editor:
   _.<User>.<Location>.xml

   You find this optiClient configuration file by default under:
   `C:\Documents and Settings\<user>\ApplicationData\Cycos\CyPhone.`

2. In the configuration file change the entries

   **<searchrequestkeepaliveenable>False</searchrequestkeepaliveenable>**
   **...**
   **<lookuprequestkeepaliveenable>False</lookuprequestkeepaliveenable>**

   to

   **<searchrequestkeepaliveenable>True</searchrequestkeepaliveenable>**
   **...**
   **<lookuprequestkeepaliveenable>True</lookuprequestkeepaliveenable>.**

3. Save the configuration file with the modifications.

# 6 Tracing

This chapter provides information on the following topics:

## 6.1 Tracing the MS CRM Integration

The components of the MS CRM integration provide a tracing. This tracing is divided into two areas:

- Tracing the Server Components

- Tracing optiClient.

For the error search in all further system components (SQL server, MS CRM server etc.) the relevant systems provide an individual tracing.

## 6.2 Tracing the Server Components

The server components comprise

- the program `Cycos.Crm.FillDatabase.exe`

- the callout module

- the MS CRM workflow.

To trace such server components, the logging framework log4net is used. The trace files created in this way are stored in the directory `c:\\cycos\crm\Logs`.

---

**Attention:**
So that the server components can write the trace files, the user account under which the components are executed require write privileges for the directory `c:\\cycos\crm\Logs`.
The user account NETWORK SERVICES under which the IIS operates requires these write privileges as well.

---

## 6.3 Tracing optiClient

Use the trace monitor BSTrcMon to trace the optiClient components. This trace monitor is installed along with optiClient in the following directory:

*<optiClient-Install>*`\Tracemonitor`.

# 7 Possible MS CRM Integration Adjustments

This chapter provides information on the following topics:

## 7.1 Configuration Files for the MS CRM Integration

The installation of the MS CRM integration uses the following, partly preconfigured configuration files.

- `crm.config`

- `entities.config`

- `context.config.`

The content of these configuration files controls the general functionality of the MS CRM integration.

You find the configuration files in the folder:
*<MS-CRM-Install>*`\Config.`

## 7.2 Adjusting the `crm.config` Configuration File

Before the MS CRM integration installation the content of the `crm.config` configuration file must always be conformed to the installation environment. You find all required information on this in Section 4.2, "Preparations", on page 28.

## 7.3  Adjusting the `entities.config` Configuration File

> **Attention:**
> The `entities.config` configuration file may only be adjusted by qualified persons.

The `entities.config` configuration file specifies the MS CRM entities and their MS CRM attributes considered by the MS CRM integration. The entries in this configuration file thus determine which MS CRM information the MS CRM integration accesses when resolving phone numbers or looking for entities.

If the MS CRM integration is to consider further MS CRM entities and MS CRM attributes besides the already preconfigured MS CRM entries, this configuration file must be expanded accordingly.

The already preconfigured MS CRM entities and MS CRM attributes can also be restricted by removing the relevant entries from the configuration file.

## 7.4  Adjusting the `context.config` Configuration File

> **Attention:**
> The `context.config` configuration file may only be adjusted by qualified persons.

The `context.config` configuration file specifies the relations between the different MS CRM entities. The entries in this configuration file thus determine, which MS CRM information is displayed in the MS CRM workflow.

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