

Administrators Guide

ClickNDial



Version: 2.X

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Summary

1	PRESENTATION PRODUCT	3
2	PRE-REQUISITES, INSTALLATION	4
3	ADMINISTRATION	5
3.1.1	<i>Telephony configuration</i>	5
3.1.2	<i>Phone numbers filtering rules</i>	8
3.1.3	<i>Speed dials parameters</i>	9
3.1.4	<i>Default speed dials</i>	9
3.1.5	<i>Personal directory synchronized with Outlook or Lotus Notes</i>	10
3.1.6	<i>Lotus Notes directory parameters</i>	11
3.1.7	<i>Dialling from Lotus Notes</i>	12
3.1.8	<i>Corporate directory configuration</i>	12
3.1.9	<i>Corporate directory fields</i>	14
3.1.10	<i>Directory contact form</i>	15
3.1.11	<i>Corporate Directory filters</i>	15
3.1.12	<i>ClickNDial user interface</i>	16
3.1.13	<i>File and system configuration</i>	17
3.1.14	<i>Save configuration data</i>	18
3.1.15	<i>License registration</i>	19
4	CNDDIAL TOOL	20
5	API NUMBERING	21
6	CLICKNDIAL DEPLOYMENT	22
6.1	SETUPCLICKNDIAL.MSI DEPLOYMENT	23

1 Presentation Product

With ClickNDial Administration, the Cisco administrator will define ClickNDial configuration and parameters. These parameters are saved in an XML file (Config.xml) which is deployed with ClickNDial user application.

ClickNDial Administration is used to define:

- Telephony configuration and authentication mode,
- Phone numbers filtering rules,
- Personal speed dials and Default speed dials,
- Personal directory synchronization with Outlook, Lotus Notes,
- Lotus Notes database search parameters,
- Dialling from Lotus Notes,
- Corporate directory (Active Directory or LDAP) configuration,
- Directory search results and contact forms,
- Directory filters,
- ClickNDial User Interface parameters,
- User configuration path and configuration update URL,
- Register new License,
- Dial API description.

ClickNDial Administration main screen provides information the version of the different modules installed and the license purchased.



ClickNDial Administration main screen also displays (on the top right corner) the date of the last configuration saved in the Config.xml file. The administrator can go to the different ClickNDial Administration screens from the Configuration menu.

2 Pre-requisites, installation

ClickNDial is a client application running on Microsoft.Net 2.0, .Net 3.5 or .Net 4.0. It can be deployed easily on Windows 8, 10 and 11.

ClickNDial is also supported on Vista and in a Citrix Metaframe environment. ClickNDial may be also executed from a network drive, without requiring a deployment.

ClickNDial is supported on Cisco Unified CallManager 10.5, 11, 11.5, 12, 12.5, 14.

The solution can rely on Web Dialer interface which is freely available on Cisco Unified CallManager. An optional CTI module is also available that provides additional cti integration (Popup, supervision, transfer, conference).

ClickNDial interfaces with Active Directory, LDAP corporate directories, Lotus Notes 6.5, 7.0, 8.0, 8.5, Outlook/Exchange 2016, 2019 and 2021.

Configuration defined by ClickNDial Administrator may be deployed with ClickNDial installed package. It then may be updated automatically from a defined intranet web address (URL) or a provided Web Service. Different profiles can be defined with different configurations for dial settings, dial rules, corporate speed dials.


User configuration may be stored on local drive optionally with a network backup or directly on network personal directory. Then personal configuration and contacts lists are saved in case of machine failure or change.

3 Administration

3.1.1 Telephony configuration

This screen is used to define Cisco telephony configuration and authentication mode.

Telephony settings



Dial mode

Webdialer fault tolerant/Load balancing Disable DNS resolve

CallManager Web Dialer address

Web Dialer backup address

CallManager WebDialer timeout (s)

IP Phone default mode

Fill CallManager login with Windows login Login to uppercase Auto login

Proxy user

Proxy password

Login associated to ip phones

Password

Common fixed password

Select language for label

Telephony login label

Password label

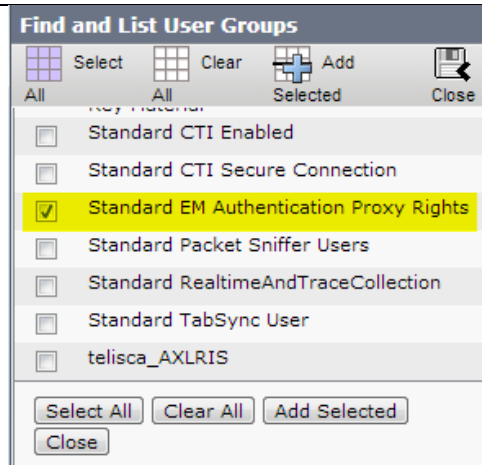
ClickNDial dialling and hang up features are based on the WebDialer SOAP interface provided by Cisco CallManager. You have to check the WebDialer service is running on one of the CallManager server. In some case it may be necessary to restart the Tomcat server on Cisco CallManager to enable WebDialer service.

Warning: You should make sure that Webdialer service is activated on CallManager server. You can check webdialer by clicking on test button. It opens your browser, with the URL <http://xxx.xxx.xxx.xxx/webdialer/Webdialer> .

Enter the IP address or DNS name of the CallManager server on which WebDialer service is running. It is possible to define a backup Webdialer address, if WebDialer fails, backup host address is used in the following try.

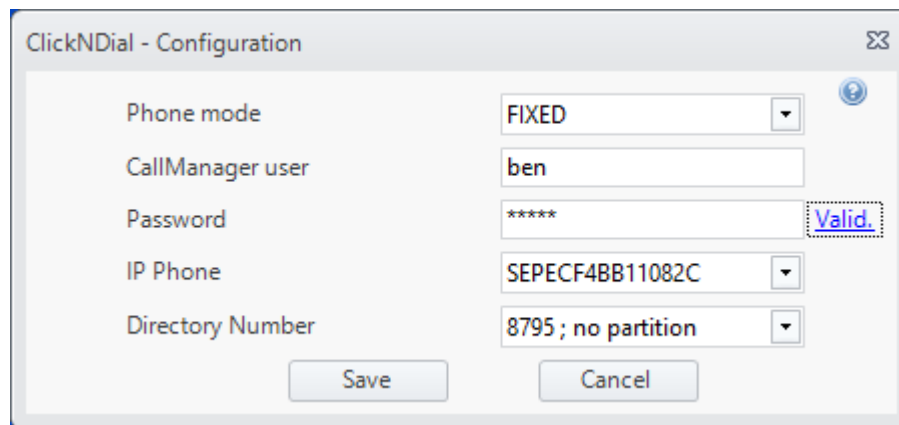
If CallManager login and Windows login are the same (Active Directory integration), it is possible to fill automatically the CallManager login in ClickNDial configuration form.

WebDialer interface requires an authentication with a CallManager user and password. You have to choose the authentication mode used. If Extension mobility is used you may choose to define a proxy user login that will be used instead of the real user login. A proxy user is a specific user defined in CallManager in the Group "Standard EM Authentication Proxy Rights".



If 'Webdialer + Proxy' mode is selected and at the same time 'Use Windows login' is checked, user in mobility mode will not require to authenticate in ClickNDial.

A proxy user may be used to avoid the user to enter his password in the configuration screen of ClickNDial.



Another mode (Web Dialer + proxy + user authentication) will ask the user to identify itself with a login and password in the user configuration screen but ClickNDial will use the proxy user and password when sending dialling commands. This mode is useful when the users are required to change their password frequently, for example when CallManager login/password is the same as Active Directory login/password. This mode avoids the users to change their configuration again in ClickNDial each time they change their password.

Proxy user is only supported by WebDialer API in Extension mobility mode. A solution is provided in fixed mode, by creating an Application User associated with all phones used by extension mobility. (The maximum associated phones in CallManager 4.x is 800). This solution is only supported in 'WebDialer + proxy + user authentication' mode because, it is necessary to authenticate the first time to get the ip phone associated with the user.

In some case, when users do not know their password and login is either the Windows login (that can be set automatically) or the phone number, and proxy mode is not possible, the solution can be to set the same password for all users and define a fixed value in ClickNDial administration.

Depending of company CallManager configuration, you may select fixed mode only, extension mobility mode only or default fixed mode or default extension mobility.

Then, enter the maximum response delay (seconds) for the WebDialer. This delay includes CallManager DC Directory or Active Directory authentication. In extension Mobility two queries to the directory are executed.

Summary of authentication modes:

		WebDialer	WebDialer + proxy	WebDialer + proxy + user authentication
Extended mobility	CallManager Login = Windows login	Present login, user enter password or common fixed password	Automatic authentication (with mobility proxy user)	Avoid re-entering password when changed
	No	Enter login and password or just login with common fixed password	Enter login (no control)	Avoid re-entering password when changed
Associated With ip phone	CallManager Login = Windows login	Present login, user enter password or common fixed password	Automatic authentication if common fixed password	Avoid re-entering password when changed
	No	Enter and password or just login with common fixed password	Enter login with common fixed password	Avoid re-entering password when changed

Warning: In extended Mobility mode, in order to use WebDialer, you must check 'Enable CTI control device' in the user definition page of Cisco Unified Communication Manager Administration.

Another way to dial is to take advantage of telisca IPS Framework service to push dialling commands to IP Phone. In this case IPS Framework service needs to be installed on a server. It includes a push server and an Authentication Proxy Server. It must be configured, from IPS Administration to scan IP Phone address in order to update its own table of IP Phone address by directory number.

If IPS Framework is used, enter IPS Framework server IP address or DNS name in ClickNDial configuration. IPS Framework Push an XML Dial command directly to the IP Phone. It is possible to define user authentication when using Framework server only if the user login is also the telephone number.

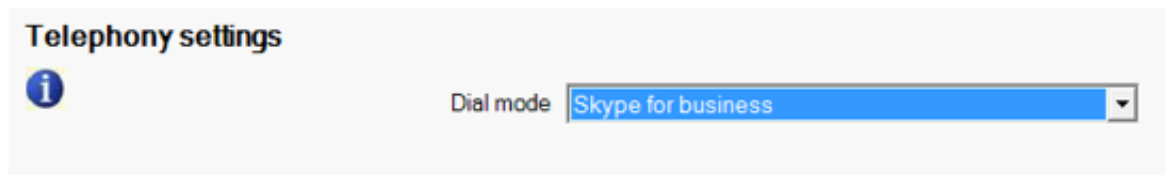
With IPS Framework two modes are available:

- Without authentication: the user only enters his primary directory number,
- With Directory authentication (only when CallManager is integrated with Active Directory): the user must enter his CallManager primary directory number and Active Directory password. Active Directory is queried using directory number to get the Active Directory login and then check it with the entered password.

Using IPS Framework to push dial command to IP Phone may be faster than using WebDialer and use no resource from CallManager. However, there are some drawbacks:

- IPS Framework scan regularly IP Phones (minimum every 15 minutes) to get IP address associated to a directory number. However, when Extension Mobility is used and the user has just logged in to a different IP Phone, the dial command may be pushed to the previous IP Phone.
- There is no hang-up command to be pushed to IP Phones. So IPS Framework sends the Soft Key 2 to hang-up. If the user has already hang-up manually, the Soft Key 2 will act as a new line command instead of a hang-up command.

It is possible to dial using "Skype for Business". To do this, select "Skype for Business" in "Dial Mode"



3.1.2 Phone numbers filtering rules

Phone number captured or loaded in personal contact list or searched in Corporate Directory may have different incompatible formats that need to be filtered before been able to dial. It also may be necessary to add a prefix to dial out of the company or for international calls.

Administrator will define the filtering rules in the Phone Number format screen. It is recommended to first load default filtering rules provided (by clicking on 'Default dial rules' button) and then updates these rules for specific country and company requirements.

Rules conditions of execution will be based on the number of digits (excluding all non-numeric characters) in order to isolate internal numbers, urgency, national and international phone numbers.

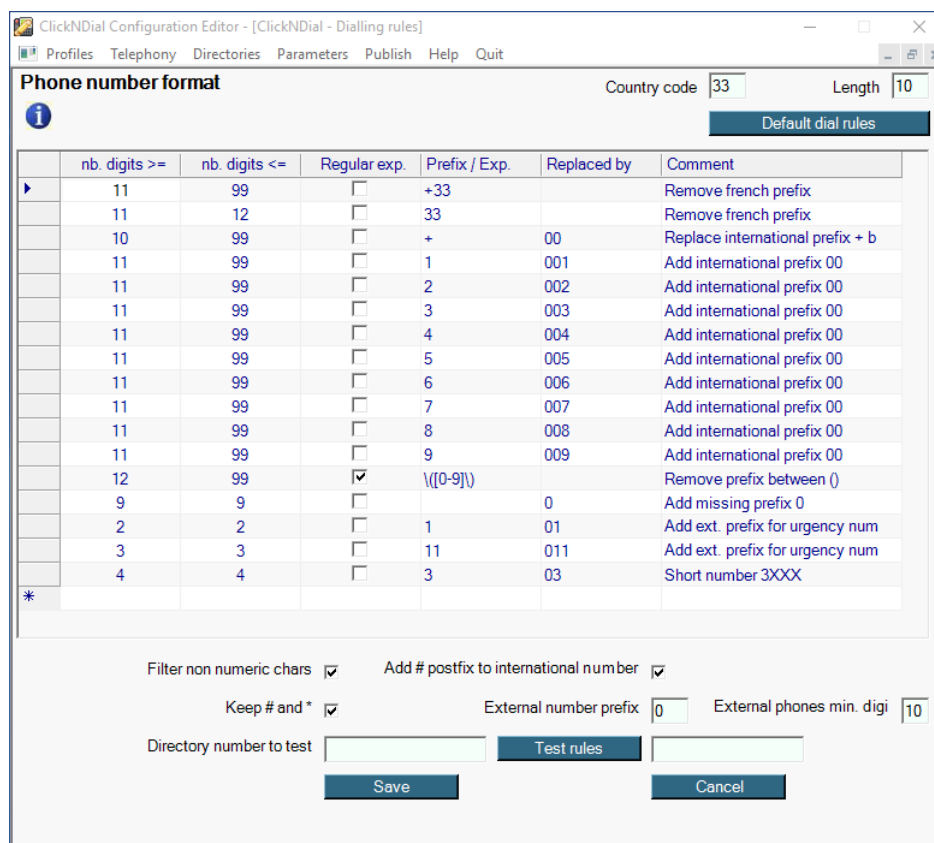
Condition may be based on the phone prefix or a regular expression. To get information on regular expression syntax, go to <http://www.regular-expressions.info>.

Enter then the value (may be empty) that will replace the prefix or regular expression found.

Replacement will be executed in the order they have been defined. The condition on the number of digits will take into account the replacements the have already been executed.

It is possible to insert a new rule or delete one or several rules.

It is possible to test the rules by entering a test phone number.



After executing the replacement rules, usually all non-numeric characters will be removed, except # and * if 'Keep # and *' have been checked.

When an international phone number is detected, it is possible to add a '#' postfix in order to speed dialling execution.

Finally, an external phone number prefix may be added for the phone number which are more than nine digits long.

3.1.3 Speed dials parameters

From this screen, the administrator defines the way speed dial may be used. It is possible to change the default category label to support different languages.

Speed dials parameters

i

Enable speed dials

Select language for label English

Default Category label Default category

	Default value	User selectable
Search on each field	<input checked="" type="checkbox"/>	
Sort speed dials	<input type="checkbox"/>	<input type="checkbox"/>
Enable load from file	<input checked="" type="checkbox"/>	

Save
Cancel

3.1.4 Default speed dials

You may define default speed dials that will be loaded when no speed dials have been yet defined by the user. When editing speed dials, the user can keep them or delete them, by selecting the option from Speed dial parameters.

Corporate speed dials

i


Last name	First name	Company/Dept	Bus. phone	Mobile	Other phone	Other phone	E-mail	Category
*								

Save
Import
Export
Delete
Cancel

3.1.5 Personal directory synchronized with Outlook or Lotus Notes

User can synchronize its Outlook contact databases or Lotus Notes names.nsf local database within ClickNDial. The whole database is displayed in ClickNDial list and can be filtered very quickly like for the speed dials.

Address book synchronization parameters



Synchro client: Outlook

Remote Path:

Select language for label: English

Directory button label: Outlook

Synchronization period: 12 hours Allow user change synchro period

Nb. contacts synchronized/sec: 10 contacts/sec

Result list attributes: LastName - FirstName - Company

Search on each field

Synchro all contacts databases

Apply phone treatments rules on synchro

Enable user to save Notes Password

Synchronize contacts without phones

On the configuration screen, the administrator selects the client type: Outlook or Lotus Notes. He defines the synchronization period and number of contacts replicated per second (to limit CPU load).

The administrator will also select the fields used for the label display in the list. The first four phones found in the contact are automatically replicated, with the label.


It is possible to active filter by searching on the first characters of each field otherwise search is made on the label displayed in the list.

3.1.6 Lotus Notes directory parameters

This screen is used to define the way Lotus Notes database (generally names.nsf) on local or remote server, is searched and the fields displayed in the result list. The phone numbers defined for the selected contacts will be displayed (up to four).

The 'Test Cnx' button open a session (via OLE) with Lotus Notes installed locally. Lotus Notes 6.2, 6.55, 7.0x, 8.0x are supported. With version 6.2 it is necessary to execute the command file "REG_COM_LOTUS_NOTES_6.5.reg' provided in ClickNDial 'tools' directory, in order to register some DLLs.

Address book synchronization parameters



Synchro client: Lotus Notes

Remote Path:

Test

Select language for label: English

Directory button label: Notes

Synchronization period: 12 hours Allow user change synchro period

Nb. contacts synchronized/sec: 10 contacts/sec

Result list attributes: LastName - FirstName - Company

Search on each field

Synchro all contacts databases

Apply phone treatments rules on synchro

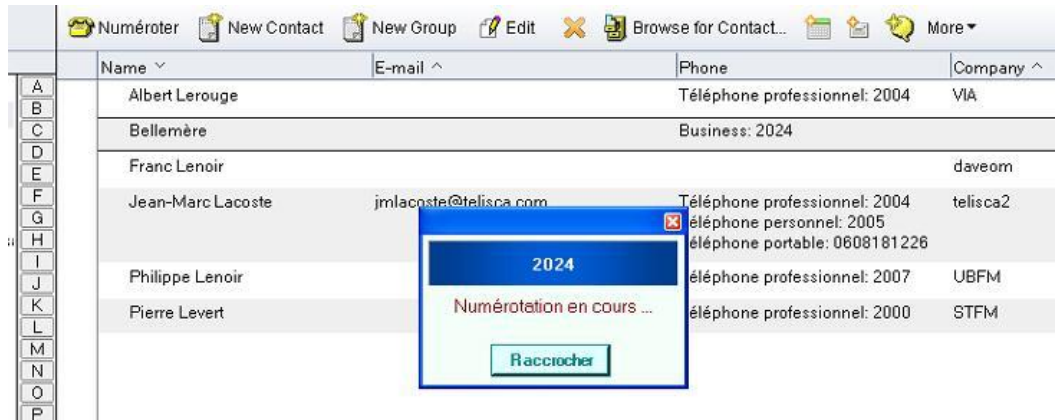
Enable user to save Notes Password

Synchronize contacts without phones

Save **Cancel**

3.1.7 Dialling from Lotus Notes

It is possible to dial from Lotus Notes using ClickNDial . A LotusScript example is provided in c:\program files\ClickNDial\tools\LotusScript.txt . It calls CNDDial.exe with the phone number to dial as a parameter. This script may be called from contact toolbar (from a Shared Action) or from a button in contact form.



3.1.8 Corporate directory configuration

ClickNDial may be used to search a contact in Corporate Directory which may be an Active Directory or generic LDAP server (like Notes LDAP Directory, Novell eDirectory, OpenLdap,).

You must first select which directory client to use: either an Active Directory (Microsoft ADSI) or a generic LDAP client (Novell LDAP client).

Eventually, you can wish to change the ClickNDial directory button label (in French and English).

Then directory server IP Address or DNS name must be entered as well as the port used : default 3268, (in some case all attributes cannot be retrieved from port 3268, use port 389 instead. For CallManager (4.x) DC Directory, use port 8404).

Note: In some case if the LDAP bind do not works with the IP Address, try with a DNS name.

You need then to enter the base node from which the search will take place. If you leave this field empty and check 'Search in sub tree', you may search in the entire directory tree. Using an adequate base node is important to get the right search performances. If you do not know what base node to use, you may browse your directory using a browser client like Softerra LDAP Browser freeware that you can download from <http://www.ldapbrowser.com/> .

Note: Care should be taken when entering the Directory base node which is case sensitive.

Directory connexion parameters

Directory type: Active Directory

Server host: 192.168.0.103 Port: 3268

Backup server host:

Base node (DN): cn=users,dc=office,dc=telisca,dc=com

Authentication mode: Proxy user Secure

Proxy user: administrator

Password: ***** Retype: *****

Search in subtree:

Close LDAP on idle timeout (s): 0

Exclude disabled users:

Test

Save Cancel

Directory connexion parameters

Directory type: LDAP

Server host: 192.168.0.103 Port: 3268

Backup server host:

Base node (DN): cn=users,dc=office,dc=telisca,dc=com

Authentication mode: Proxy user Secure

Proxy user complete path: administrator

Password: ***** Retype: *****

Search in subtree:

Close LDAP on idle timeout (s): 0

Test

Save Cancel

Different authentication modes are available:

- Anonymous,
- Proxy user : enter a valid user and password with at least read access,
- Windows user (only in Windows domain): the windows user logged to PC that executes ClickNDial will be used.

When searching Active Directory, it is possible to use encrypted credential (authentication) like Kerberos.

Note: For the LDAP directory setting, the proxy user must be entered with the complete LDAP node path (as shown in the screen shot example).

Note: When defining a proxy user, you must make sure that this user and password will not change in the future as it will be deployed in the ClickNDial configuration file on the user's PC. It is however always possible to update the configuration file using the Web URL mechanism.

Enter the maximum response time for the directory search (which is also used to set the maximum execution time on the directory server).

Enter the maximum number of contacts resulting from a search query (to avoid loading directory server).

You can check the directory setting from ClickNDial Administration by clicking on the 'Test cnx' button and eventually fix the directory parameters depending of test result.

3.1.9 Corporate directory fields

From this screen the administrator defines up to 4 search fields and the way search is executed: begin with, contains or exactly the string entered by the user.

You are then required to define the directory attributes that will be displayed in the directory search result list. The first two attributes will be separated by a space, the last one will be separated by a dash ' - '. By default, 'sn', 'givenName' and 'department' attributes are selected which correspond to the Last Name, First Name and Department.

Define directory fields

Select language for label: English

Search field: Last name (sn), First name (givenName), [empty], [empty]

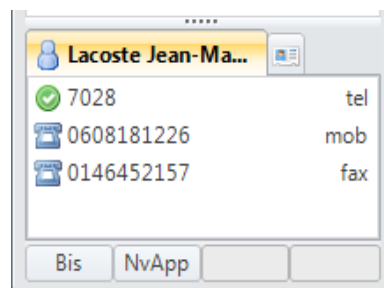
Result list attributes: sn - givenName - department

Phone short label: [empty] (telephoneNumber), [empty] (mobile), [empty], [empty]

Email short label: [empty] (mail)

Buttons: Save, Cancel

One or several phone numbers may be available for a directory contact. If more than one phone number attribute are defined, it is recommended to add a short label to describe the category of the phone number. This label will be added as a prefix to the phone number in the ClickNDial popup menu (see below).



Note: When loading directory form or clicking the 'Text cnx' button, ClickNDial administrator executes a query on the defined 'base node' to load the list of attributes used in the directory. The first 100 nodes are loaded. In case of directory server address error this result in a timeout error after 30 seconds.

3.1.10 Directory contact form

The Directory Form screen is used to define the format of an optional directory contact form. This contact form may be displayed when the ClickNDial user left click on a contact or right click on a contact and select 'Show contact form' in the popup menu.

The screenshot shows a configuration window titled "Set directory contact card". It features an information icon in the top left. The main area is divided into three columns: "New line", "Label", and "Fields". There are 12 rows, each with a checkbox in the "New line" column, a text input field in the "Label" column, and a dropdown menu in the "Fields" column. At the bottom, there is a "Photo URL" field with a help icon, and two buttons: "Save" and "Cancel".

Enter an optional label which will be added as a prefix to the selected directory attribute. If 'New line' is not checked, the labels and or attributes values will be separated by a space.

Contact form will be cleared automatically after a delay defined in this screen (in seconds).

3.1.11 Corporate Directory filters

This screen is used to define filters criteria that are applied to corporate Directory search results.

Filtering may be useful, in the following cases:

- Exclude system users (for instance, in CallManager directory, users marked 'CiscoPrivateUser' in description attribute should be ignored),
- Exclude users that are still in directory but no more in the company,
- Limits results to a list of organisation units (ou) filtering the end of distinguishedName.

Define corporate directory filters

Select filter values (selected if criteria1 and criteria2 and ...)

Attribute	compare	Value
*		

Exclude filter values (excluded if criteria1 or criteria2 or ...)

Attribute	compare	Value
*		

Save Cancel

3.1.12 ClickNDial user interface

From User Interface parameters screen, you will configure the way ClickNDial is displayed. You may also authorize ClickNDial user to update some of the user interface parameters.

ClickNDial Configuration Editor - [ClickNDial - User interface parameters]

Profiles Telephony Directories Parameters Publish Help Quit

User interface parameters

Default value **User selectable**

Default Hot key A-Z {Fn}

Use Ctrl+Inser to copy

Dial immediately on hot key

Search selected contact

Outlook addin enabled

Dial from URL in Browser

Dial URL

Global search in all directories

Auto start on session open

List of groups AD for auto start

Display ClickNDial right bottom

Always on top

Auto hide delay (s)

Show in taskbar

Ask to confirm when quitting

Default size Width (pixels) Height (pixels)

Save Cancel

You will define the hot key used to capture a selected phone number in a Windows application. It may be a key combination of keys like for instance, Alt + {F6} (function key F6).

Note: No all combinations will work depending of you windows configuration and of other applications installed. They may be a conflict with keys used by other applications.

When updating the hot key, ClickNDial will need to be reloaded to take into account the change. ClickNDial interface will display a warning message asking to close and reopen the application.

User can also select a contact Last Name and press the Hot Key to search in ClickNDial. If Global Search is enabled, ClickNDial will search in all defined directory and will display the result in the Global Search tab. Otherwise, ClickNDial will search in the following order: Speed dials, synchronized contacts, enterprise contacts then Notes database and will stop when at least one contact is found.

To retrieve the selected text a copy paste is simulated. For this operation, the tool uses a combination of keys. The administrator has the option to choose the CTRL + Insert by checking the "Use Ctrl + Insert" to copy box. Otherwise, the combination of CTRL + C is used.

Note that the Hot Key can also be used to display ClickNDial instead of clicking on the icon in the task bar.

The administrator can decide to enable or not the Outlook add-on. Outlook needs to be stopped and restarted to take into account this change (check it is really stopped). The Outlook add-on adds a dial Icon in the personal contacts task bar. It is compatible with Outlook 2016, 2019 and 2021.

It is possible to use the URL dialto:// (example: dialto://21567,Dianel Lacoste) from a browser, to dial using ClickNDial. This URL calls the application CNDDial.exe in default execution directory c:\program files\ClickNDial. Default execution directory may be changed, for instance when ClickNDial is launched from a network directory. URL may be changed (example: callto://). Warning: each time a new URL is added, the previous is not deleted from registry.

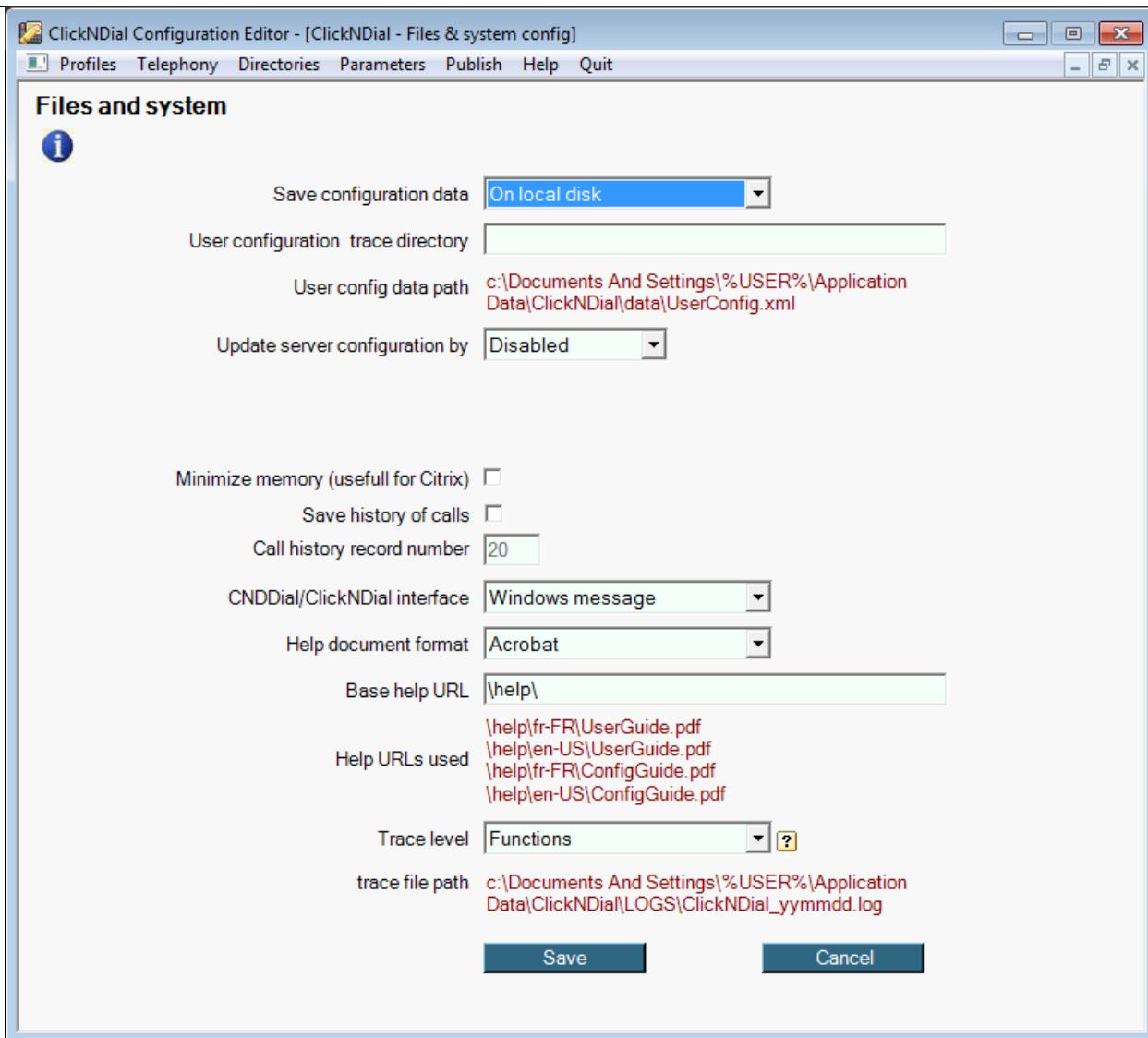
It is possible to add a hyperlink in a Microsoft Excel cell to call 'dialto://phone_number' URL. An example of Excel file is provided in ClickNDial Administration 'tools' subdirectory. Starting from Excel 2003, a warning message is displayed when user click a hyperlink in Excel. To disable this message you need to update a registry key as shown in nowarninghyperlinkoffice2003.reg, provided in ClickNDial Administration 'tools' subdirectory.

ClickNDial may register 'autostart when opening session' featured when first started. User may then choose autostart or not. This is useful when ClickNDial is launched from a network directory, because in this case it is not installed by setup (that may install autostart feature). To force autostart, ClickNDial adds a registry value in key KEY_CURRENT_USER\Software\Microsoft\Windows\CurrentVersion\Run.

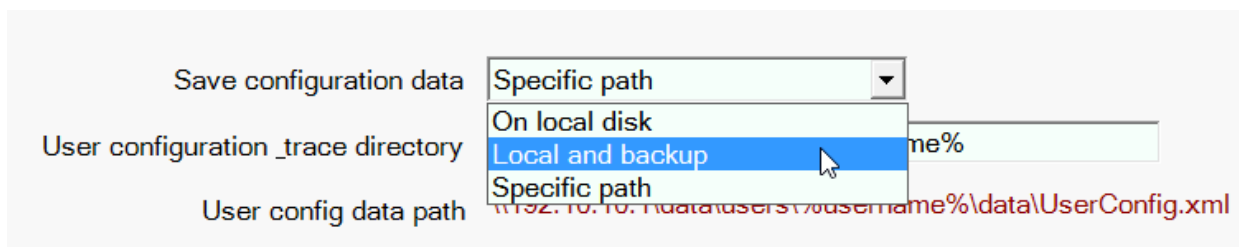
Some parameters may be changed by the user from the configuration screen if the administrator checks the 'User selectable' check box.

3.1.13 File and system configuration

In this screen you will define where the user configuration (authentication information, user interface information and speed dials) are saved.



3.1.14 Save configuration data



By default, UserConfig.xml and SpeedDial.xml are saved on the local disk in c:\Documents and Settings\username\Application Data\ClickNDial\data. It is also possible to save them in a backup directory (on a personal LAN disk) or save them only in the personal LAN disk (select specific path). The trace, as well are saved in 'LOGS' subdirectory of default installed directory. You are then required to enter the path where you want the personal configuration and trace files to be saved. Path may include Windows environment variables (example: [\\ServUserData\%USERNAME%\ClickNDial](#)).

```
<USER_CONFIG_MODE>LOCAL_BACKUP</USER_CONFIG_MODE>
<SAVE_USER_CONFIG_PATH>##empty##</SAVE_USER_CONFIG_PATH>
```

Config.xml parameters for user data saving settings

ClickNDial includes a mechanism that offers the opportunity to update automatically the system configuration (Config.xml file) from a defined URL. Each time ClickNDial is loaded, it checks the version date of the Config.xml file that is available in the entered URL. The version date is not the Config.xml file date but the value of the CONFIG_UPDATE_DT tag in Config.xml file. This is the date displayed by ClickNDial Administrator main menu. If the configuration update date in the URL is later than the one loaded in ClickNDial it replaces automatically the one used by ClickNDial and save it on the local disk. As standard user usually do not have write access on Program files directory, Config.xml is copied to users application data directory for update.

Note: Please check that the new configuration always contains a correct update URL in order to be able to update it automatically in the future.

You can use the 'Test' button to check the URL, it will display the current version of the Config.xml file in the URL.

The new Config.xml file must be copied on a web server on which a virtual directory have been created with read only access.

It is possible to force .Net to release unused memory (for example when windows are closed or hidden). This option is particularly interesting in case running ClickNDial on Citrix. CNDDial tool is used to dial from a third party application or dialto: URL. It communicates with ClickNDial by Windows message. In case of conflict with another application, a communication by the file system is available.

Trace level default is 'Error' which means only forced traces (at start-up) and Errors are saved in the log files in c:\Documents and Settings\username\Application Data\ClickNDial\LOGS. In order to help solving issues and provide a better support, it may be useful to set trace level to Treatments or Functions. If you want to get detailed logs for a specific PC only, you can change manually the TRACE_LEVEL tag in the Config.xml file to METHODS. Log files are deleted after a two weeks period.

You can view the log file by clicking on company (or evaluation) label while pressing Ctrl + Shift keys.

3.1.15 License registration

From the menu, select 'Register license', you get the following page. Click on 'Select' button, then select a 'Licence.xml' file. It is decrypted by administration and license information is displayed on the form.

If license is OK, click on the 'save' button, it copies the Licence.xml file in c:\program files\ClickNDial\data and in c:\program files\ClickNDial\UserSetup. New license is take into account in administration, however ClickNDial and Outlook (for the add-in) need to be reloaded.

4 CNDDial tool

ClickNDial includes CNDDial.exe tool (available in c:\program files\ClickNDial\). It can be used to dial from another application or search a contact in ClickNDial directories.

To dial, the command is: **CNDDial phoneNumber[,label]** (which means the label is optional). CNDDial send a Windows message to ClickNDial which needs to be running. It starts dialling the phoneNumber provided in parameters using dial configuration and dial rules defined in ClickNDial.

CNDDial can also be used to search for a contact via the directories defined in ClickNDial Fast Numbers, contacts synchronized with Outlook or Notes, Notes database, Active Directory or LDAP corporate directory.

To search a contact, the syntax is:

CNDDial -sNamePrefix

Contacts which names begin by Name Prefix are displayed in ClickNDial. If Global Search have been enabled in ClickNDial the results of the search in the different defined directories are merged. Otherwise, ClickNDial search in then following order: speed dials, synchronized contacts, corporate directory, Notes database.

5 API numbering

It is possible to dial from another application using Windows Message API. This API can be called from different languages: C/C++, Visual basic, C#, VB.Net, ...

Here is a C# example of a function that dial a phone number in parameter:

```
/// <summary>
/// Send command arguments using Windows Message interface
/// </summary>
/// <param name="args">Command arguments</param>
/// <returns></returns>
private bool SendDn2Dial(string args)
{
try
{
    int hwnd = 0;
    //Get a handle for ClickNDial Application main window
    hwnd = Win32.FindWindow(null, "ClickNDial");

    if (hwnd != 0)
    {
        // create copy data structure to send parameters
        Win32.CopyDataStruct cds = new Win32.CopyDataStruct();
        try
        {
            cds.cbData = (args.Length + 1) * 2;
            // allocate memory
            cds.lpData = Win32.LocalAlloc(0x40, cds.cbData);
            // copy arguments to data structure
            Marshal.Copy(args.ToCharArray(), 0, cds.lpData, args.Length);
            cds.dwData = (IntPtr)1;

            // send message of copydata type
            Win32.SendMessage((IntPtr)hwnd, Win32.WM_COPYDATA, IntPtr.Zero, ref cds);
        }
        finally
        {
            cds.Dispose();
        }
        return true;
    }
    else
        return false;
}
catch (Exception ex)
{
    if (trace != null)
        trace.Log("CNDDial", "SendDn2Dial", ex);
    return false;
}
}
```

6 ClickNDial deployment

The configuration file (Config.xml) created by ClickNDial Administration is saved both in the c:\Program files\ClickNDial\data and c:\Program files\ClickNDial\usersetup.

The usersetup directory therefore contains the files:

- SetupClickNDial.msi - silent installer ClickNDial, CNDDial and ClickNDial Outlook add-in,
- SetupClickNDialNetEmbedded.msi - silent installer ClickNDial, CNDDial integrated with .Net,
- Config.xml,
- Licence.xml,
- InstallAndCopyConfig.bat – launch's installation, copy and licence.xml config.xml files,
- InstallAndCopyConfigNetEmbedded.bat – launch's installation, copy and licence.xml config.xml files,

The first two installers assume prerequisites in Microsoft .Net Framework 2.0 or higher are installed on the computer. The installer installs a version SetupClickNDialNetEmbedded integrating .Net components used.

The license file contains the name of the company that has purchased the license. The company name appears at the bottom of the screen ClickNDial.

License file includes the number of copy purchased as well as the company name that will be displayed on ClickNDial user interface (at the bottom).

To install ClickNDial on a user PC, execute the InstallAndCopyConfig.bat batch file that will run the MSI package and copy the Config.xml and Licence.xml files.

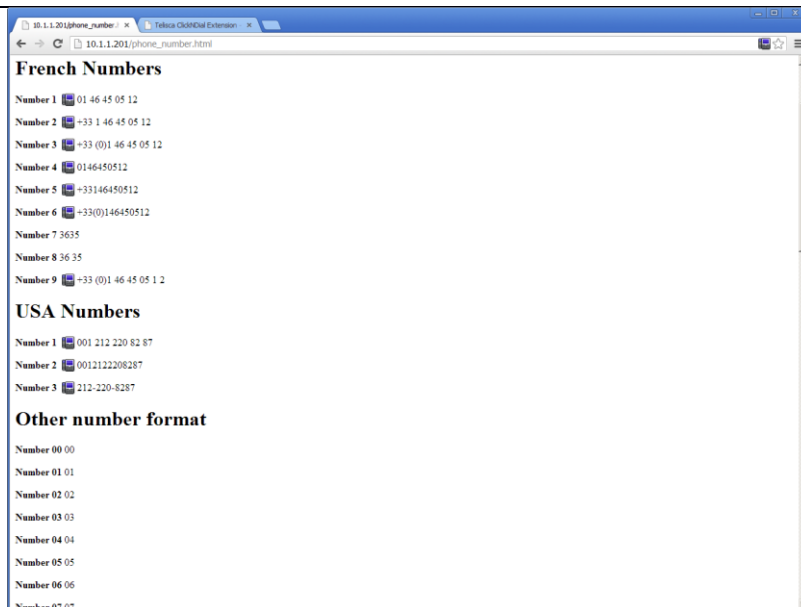
ClickNDial setup install in per machine mode. It is then possible to install from the login script using an admin profile (using RUNAS command or utility like cpau.exe (available in tools directory), to have the necessary writes) and execute ClickNDial in user profile.

It is also possible to execute ClickNDial from a network directory. You need first to authorize .Net applications to be executed from a remote drive by executing a utility like 'EnableNetworkAccess.exe' (available in tools directory).

If your company has already installed a tele-distribution application you may directly include in the distribution package the SetupClickNDial.msi package, the config and license file.

A Chrome plugin exists to facilitate dialling of a phone number using ClickNDial. To install it, just open the following link in Chrome: <https://chrome.google.com/webstore/detail/telisca-clickndial-extens/fbehoalijombffjknldhjbjeakondj>.

A new icon will appear in Chrome. By right-clicking on it you can display the option panel, and define the protocol used to call ClickNDial (see chapter ClickNDial user interface and SetupClickNDial.msi Deployment). The icon of the plugin informs you that the plugin is active. Every phone number recognized will be preceded by a link displayed by an icon.



6.1 SetupClickNDial.msi Deployment

You can install the client ClickNDial by command line with the following parameters:

- TARGETDIR = "C:\Program Files\ ..." installation directory. If this parameter is not specified, the default installation directory is "% PROGRAMFILES%\ClickNDial".
- URLCONFIG = "http://X.X.X.X/Config.xml": URL to download the configuration file.
If the Config.xml configuration file located in the same directory as the installation file SetupClickNDial.msi, the local file will be copied in the ClickNDial client installation directory.
- PROTOCOL = tel:
Save the protocol "tel" in Windows 7, 8 or 10 systems to have the ability to select the default program when the IE, Firefox or Chrome detects protocol "tel".
- STARTUP = true:
 - Start Clickndial when new session is opened, for every users

Installation example:

SetupClickNDial.msi URLCONFIG = "http://192.168.0.10/ClickNDial/Config.xml" PROTOCOL = "tel"