



UC Provisioning Suite

2.1.0

Product Description

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1 Overview

Alpha-CNS UC Provisioning Suite is an advanced Provisioning and Number Management tool especially developed for Microsoft Skype for Business and Teams.

It provides a complete provisioning engine for users, Common Area Phones, and Skype for Business Analog Devices for an easy, centralized, and cost-effective management from policy and number assignments up to call forwarding configuration. All SfB entities can be managed individually or via the build-in bulk load feature. Provisioning and de-provisioning of entities can be automated as well by using build-in workflows or by integrating with existing IDM solutions.

The integrated number management allows you to keep track of all available, reserved, or assigned DDIs and extensions per number range and site.

A simple role based access control design allows task delegation, audit, and additional security.

2 Sites and Profiles

The alpha-CNS UC Provisioning suite uses sites and profiles to define required settings per location to be applied to users and other SfB entities. A site can be considered as a physical location where SfB has been deployed independently of where SfB servers or gateways have been installed. If users have been enabled for SfB and maybe provisioned with DDIs provided by a SIP trunk that is being terminated in a data center, then this location can be treated as a site and one can configure different profiles for this specific site. For certain sites it is required to configure users and phones differently, some users are allowed to make international calls, should have Exchange UM enabled, others should only receive calls. These can be achieved by defining different profiles and assign different SfB policies and Exchange provisioning settings to these profiles. SfB policies need to be created in Skype first but will automatically replicated to alpha-CNS UC Provisioning suite.

Number ranges whether provided by local gateways connected to local carriers or by central SIP trunks can be assigned to sites and profiles. When provisioning users and phones, numbers will be automatically taken from assigned ranges, or administrators can pick numbers and extensions manually.

Status	Site Name Prefix/Code Description	Profiles	Number Ranges
●	CN Anting CN-ANT/CN-ANT China Anting	Unrestricted	CN-Anting-Range1 +863334000 - ...
●	CN Baicheng CN-BAI/CN_Baicheng China Baicheng	Unrestricted	
●	DE Berlin DEBER/DEBER Germany Berlin	Unrestricted National CAP-National CAP-Internal Meeting-Unrestricted	DE-UCfy +4930233207410 - ...
●	FR Paris FR-PAR/FR_Paris France Paris	Unrestricted	
●	IE Dublin IE-DUB/IE_Dublin Ireland Dublin	Unrestricted	IE-Dublin-Range1 +35312227000 - ...
●	IN-Bangalore IN-BLR/IN_Bangalore	Unrestricted	IN-Bangalore +912065651000 - ...

Picture 1 – List of Sites

Site Name: DE Berlin

Status: Active

Prefix: DEBER

Site Code: DEBER

Device OU: OU=StBPhones,OU=StB,dc=mydomain

Description: Germany Berlin

Profiles: CAP-Internal, CAP-National, Meeting-Unrestricted, National, Unrestricted

Master Profile: --None--

Range Name	From	To	For All Profiles	Auto Assignment	Site Priority	Delete
DE-UCfy	4930233207410	4930233207499	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	5	X

Analog Gateways:

Gateway Name	Address	Modell	Primary Site
DEBERVW01	172.30.40.221	unknown	<input type="checkbox"/>

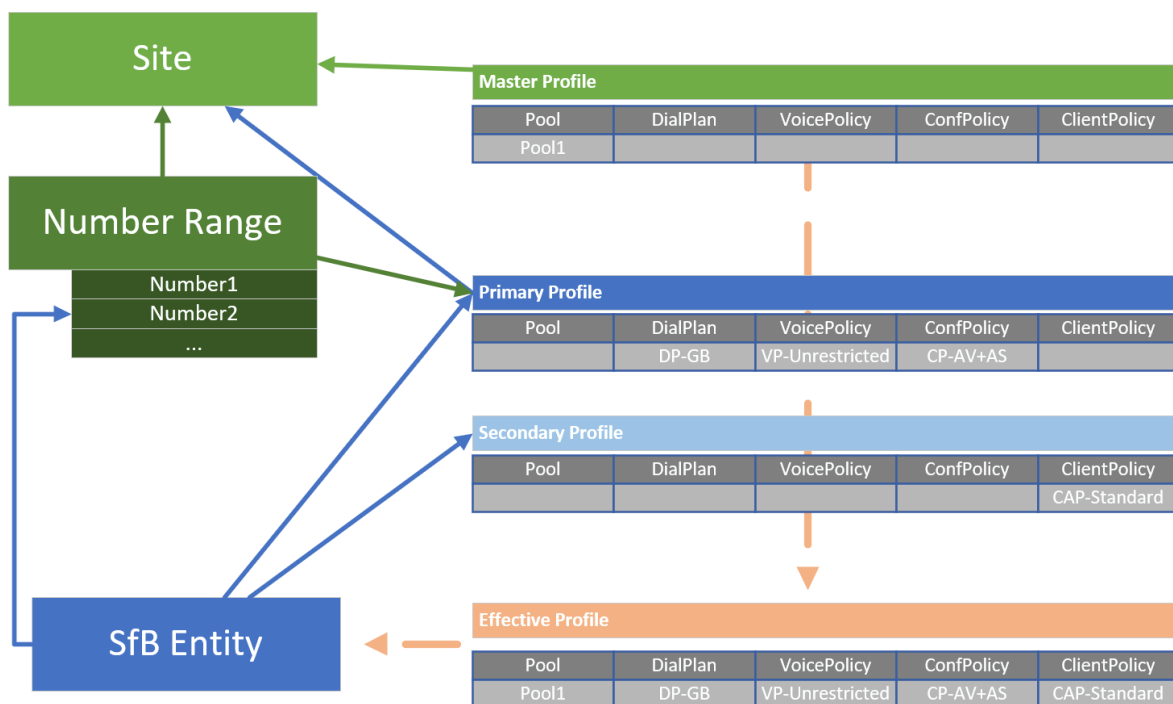
Picture 2 – Site Details

Administrative tasks can be delegated by assigning access permissions to individual sites. Local administrators would then be able to provision users and phones within their site or sites. Users and phones will be created in predefined containers in Active Directory and only number ranges assigned to those sites can be used to pick numbers from. This allows a complete separation between sites if required.

Profiles can be seen as templates as they hold the required configuration when adding new users or phones. But as users will permanently be assigned to a site and a profile, new settings can automatically be re-applied to users and phones when profile settings are being changed or

when users and phones are manually be modified in SfB itself and re-enforcement is enabled on the profile.

The UC Provisioning Suite supports different types of profiles to provide a most flexible configuration while minimizing management effort. While “Primary Profiles” will be used to assign sets of SfB or Teams policies to users, settings which are common to all profiles within a site can be configured on a “Master Profile” instead. A master profile can be assigned to one or more sites and will be used to calculate the “effective profile” for entities, which are assigned to those sites.



For minor deviations from Master or Primary Profiles a “Secondary Profile” can be used to set or overwrite settings. The effective profile will be calculated as described in the figure above.

3 Number Management

Alpha-CNS UC Provisioning Suite also provides a complete number management component. It helps you to keep track of all assigned DDIs or internally defined extension ranges worldwide. Within a few clicks administrators can see how many numbers are still available or reserved and can request new ranges from their carrier in time if required.

Show DID ranges for site: --All--

Range Name	Number Range	Extension Length	Shared DDI	First Ext.	Last Ext.	Total DIDs	Vacant DIDs	Auto Assignment	
CN-Anting-Range1	+863334000 - +863335999	4	<input type="checkbox"/>			2000	2000	<input checked="" type="checkbox"/>	Edit
DE-Home	+493024178450 - +493024178459	2	<input type="checkbox"/>			10	5	<input type="checkbox"/>	Edit
DE-UCfy	+4930233207410 - +4930233207499	2	<input type="checkbox"/>			90	65	<input checked="" type="checkbox"/>	Edit
IE-Dublin-Range1	+35312227000 - +35312227999	3	<input type="checkbox"/>			1000	1000	<input checked="" type="checkbox"/>	Edit
IN-Bangalore	+912065651000 - +912065651249	4	<input type="checkbox"/>			250	250	<input checked="" type="checkbox"/>	Edit
IT Torino Range1	+3904448000 -	3	<input type="checkbox"/>			200	200	<input checked="" type="checkbox"/>	Edit

Picture 3 – List of Number Ranges

Number ranges are assigned to sites and can be used by different profiles.

Select All Unselect All Vacant Numbers Assigned Numbers Blocked Numbers

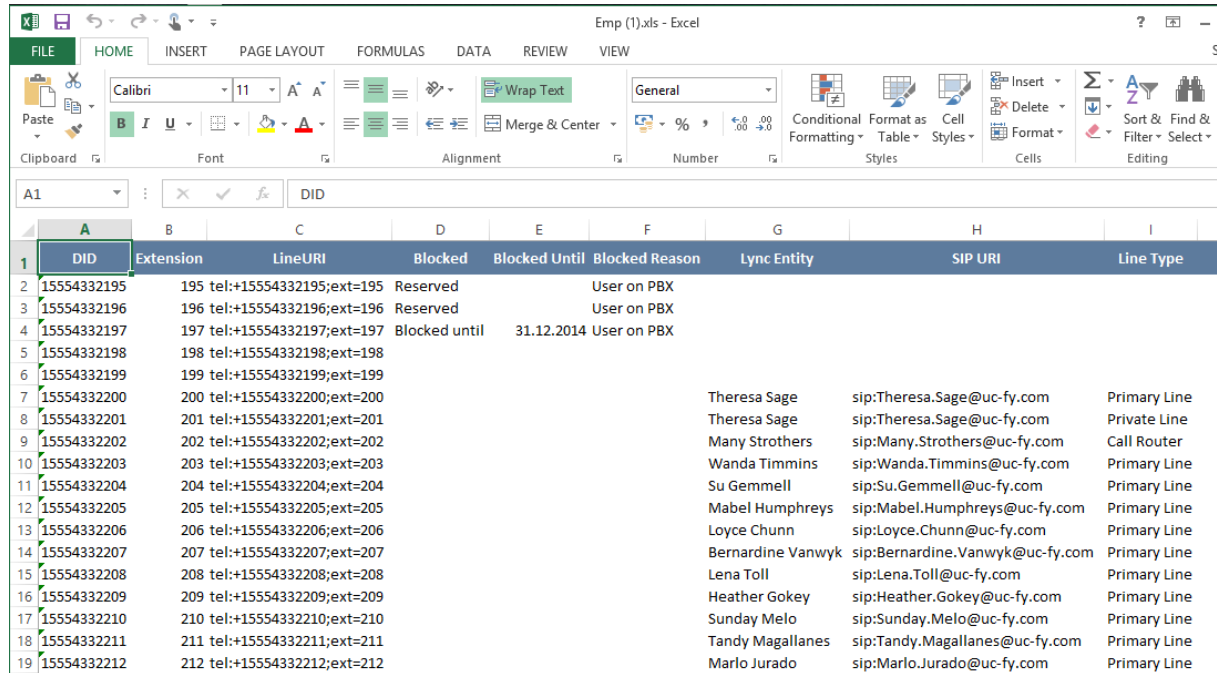
Status	DDI	Extension	until	Blocked Reason	Line Type	SfB Entity	
<input type="checkbox"/>	4930233207410	10			primaryline	sip.dk@uc-dk.com	<input type="checkbox"/>
<input type="checkbox"/>	4930233207411	11			primaryline	sip.sitea-cap-reception3@uc-dk.com	<input type="checkbox"/>
<input type="checkbox"/>	4930233207412	12			primaryline	sip.sitea-cap-reception4@uc-dk.com	<input type="checkbox"/>
<input type="checkbox"/>	4930233207413	13			primaryline	sip.sitea-cap-reception5@uc-dk.com	<input type="checkbox"/>
<input type="checkbox"/>	4930233207414	14			primaryline	sip.sitea-cap-reception6@uc-dk.com	<input type="checkbox"/>
<input type="checkbox"/>	4930233207415	15			primaryline	sip.sitea-cap-reception7@uc-dk.com	<input type="checkbox"/>
<input type="checkbox"/>	4930233207416	16			primaryline	sip.sitea-analog-reception1@uc-dk.com	<input type="checkbox"/>
<input type="checkbox"/>	4930233207417	17			primaryline	sip.sitea-analog-lobby1@uc-dk.com	<input type="checkbox"/>
<input checked="" type="checkbox"/>	4930233207418	18	30.12.2019 23:00:00		unknown		<input type="checkbox"/>
<input checked="" type="checkbox"/>	4930233207419	19			unknown		<input type="checkbox"/>
<input type="checkbox"/>	4930233207420	20			primaryline	sip.testuser0906@uc-dk.com	<input type="checkbox"/>
<input type="checkbox"/>	4930233207421	21			primaryline	sip.testuser0907@uc-dk.com	<input type="checkbox"/>

Picture 4 – List of Numbers and Extension within a Number Range

Numbers can easily be assigned to SfB users, common area phones and analog devices which are associated with analog ports on media gateways.

All SFB entities including assigned numbers will be synchronized with the UC Provisioning Suite by the Provisioning Engine including Response Group Workflows, Conference Dial-In numbers, and Lync Meeting Rooms to ensure a most up-to-date list of number assignments.

All policy and profile changes of all Sfb Entities will be logged in the backend database. This allows tracking of all discovered changes.



DID	Extension	LineURI	Blocked	Blocked Until	Blocked Reason	Lync Entity	SIP URI	Line Type
15554332195	195	tel:+15554332195;ext=195	Reserved		User on PBX			
15554332196	196	tel:+15554332196;ext=196	Reserved		User on PBX			
15554332197	197	tel:+15554332197;ext=197	Blocked until	31.12.2014	User on PBX			
15554332198	198	tel:+15554332198;ext=198						
15554332199	199	tel:+15554332199;ext=199						
15554332200	200	tel:+15554332200;ext=200				Theresa Sage	sip:Theresa.Sage@uc-fy.com	Primary Line
15554332201	201	tel:+15554332201;ext=201				Theresa Sage	sip:Theresa.Sage@uc-fy.com	Private Line
15554332202	202	tel:+15554332202;ext=202				Many Strothers	sip:Many.Strothers@uc-fy.com	Call Router
15554332203	203	tel:+15554332203;ext=203				Wanda Timmins	sip:Wanda.Timmins@uc-fy.com	Primary Line
15554332204	204	tel:+15554332204;ext=204				Su Gemmell	sip:Su.Gemmell@uc-fy.com	Primary Line
15554332205	205	tel:+15554332205;ext=205				Mabel Humphreys	sip:Mabel.Humphreys@uc-fy.com	Primary Line
15554332206	206	tel:+15554332206;ext=206				Loyce Chunn	sip:Loyce.Chunn@uc-fy.com	Primary Line
15554332207	207	tel:+15554332207;ext=207				Bernardine Vanwyk	sip:Bernardine.Vanwyk@uc-fy.com	Primary Line
15554332208	208	tel:+15554332208;ext=208				Lena Toll	sip:Lena.Toll@uc-fy.com	Primary Line
15554332209	209	tel:+15554332209;ext=209				Heather Gokey	sip:Heather.Gokey@uc-fy.com	Primary Line
15554332210	210	tel:+15554332210;ext=210				Sunday Melo	sip:Sunday.Melo@uc-fy.com	Primary Line
15554332211	211	tel:+15554332211;ext=211				Tandy Magallanes	sip:Tandy.Magallanes@uc-fy.com	Primary Line
15554332212	212	tel:+15554332212;ext=212				Marlo Jurado	sip:Marlo.Jurado@uc-fy.com	Primary Line

Picture 5 – List of Numbers and Extensions exported to Excel

Number ranges can easily be exported to Excel for further processing.

4 Provisioning

4.1 User Management

The UC Provisioning Suite provides an easy to use Web interface to add, modify, and delete Sfb entities. Administrators can easily search for all Sfb entities, whether it is a user, a common area phone, or a conference dial-in number, they will be shown in the search results. Sfb users, common area phones, and analog devices can then directly be added or modified using the Web portal, response groups and conference dial-in numbers etc. will be read-only.

ny

SIP URI	Display Name	Type
sip:Bonny.Tasker@uc-fy.com	Bonny Tasker	User
sip:dialingermany@uc-fy.com	DE Conference DialIn	Conference Dial In
sip:Genny.Schwer@uc-fy.com	Genny Schwer	User
sip:Many.Strothers@uc-fy.com	Many Strothers	User
sip:NYConfDialIn@uc-fy.com	US Conference DialIn	Conference Dial In
sip:ny-operator@uc-fy.com	NY Operator	Response Group

Picture 6 – Search Result List

Depending on the site permissions the user will only be able to search within the configured sites or when enabling existing users in Active Directory for Lync the user can only search within the configured Active Directory containers.

Display Name: SIP URI:

General Policies Call Forwarding

Entity Type

Site / Profile

Displayname

User Principle Name

SIP URI

Enterprise Voice

Exchange UM

Numbers

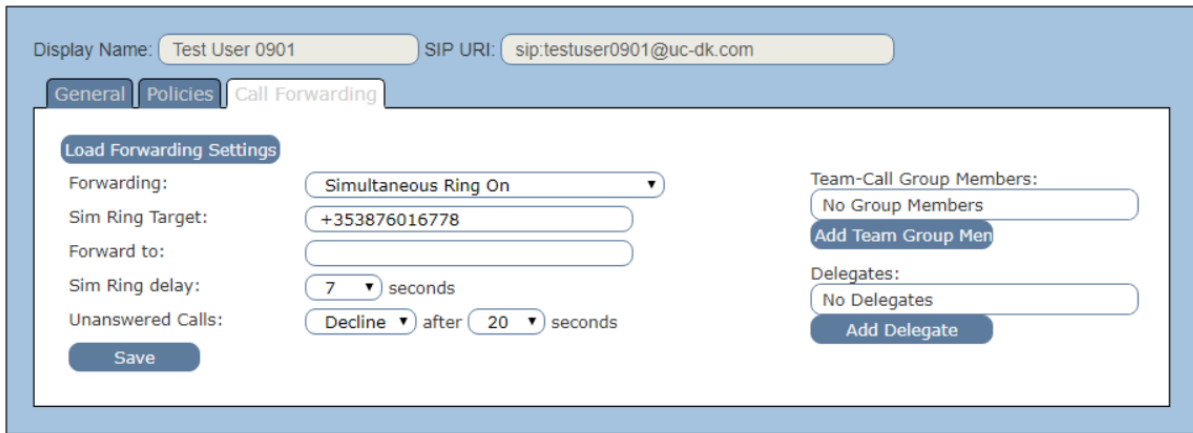
Display Name: SIP URI:

General Policies Call Forwarding

	Current Setting	Effective Profile Setting
SfB Online	<input type="text"/>	<input type="text" value="No"/>
Teams	<input type="text"/>	<input type="text" value="No"/>
Enterprise Voice	<input type="text" value="Yes"/>	<input type="text" value="Yes"/>
Dial Plan	<input type="text" value="DE-Berlin"/>	<input type="text" value="DE-Berlin"/>
Voice Policy	<input type="text" value="GW01-All"/>	<input type="text" value="GW01-All"/>
Registrar Pool	<input type="text" value="sfb03.dklab.com"/>	<input type="text" value="sfb03.dklab.com"/>
Conferencing Policy	<input type="text" value="CP-AV+AS+Data"/>	<input type="text" value="CP-AV+AS+Data"/>
Client Policy	<input type="text"/>	<input type="text"/>
Hosted Voice Mail Enabled	<input type="text" value="No"/>	<input type="text" value="No"/>
Hosted Voice Mail Policy	<input type="text"/>	<input type="text"/>
Exchange UM Dial Plan	<input type="text"/>	<input type="text"/>
Voice Routing Policy	<input type="text"/>	<input type="text"/>
Location Policy	<input type="text"/>	<input type="text"/>
PIN Policy	<input type="text"/>	<input type="text"/>
External Access Policy	<input type="text"/>	<input type="text"/>
User Services Policy	<input type="text"/>	<input type="text"/>
Archiving Policy	<input type="text"/>	<input type="text"/>
Presence Policy	<input type="text"/>	<input type="text"/>

All relevant user details including the site and profile the user is assigned to and all assigned DDIs and extensions are shown on the General tab. When adding a new user or phone, or modifying an existing one all information required for the provisioning the user or phone will be taken from the assigned profile. The profile also controls whether Exchange Unified Messaging will be enabled.

Although it is recommended to use the UC Provisioning Suite for all SfB related provisioning tasks, Administrators can still use SfB Powershell commands or the SfB Control Panel to configure users. Those changes will always be replicated back to the Provisioning database to provide a current state view on all SfB entities and number assignments. Additional profile setting can be used to reinforce policy assignments. When they are changed manually or the profile is updated with new policies then these settings will be re-applied to all associated SfB entities.

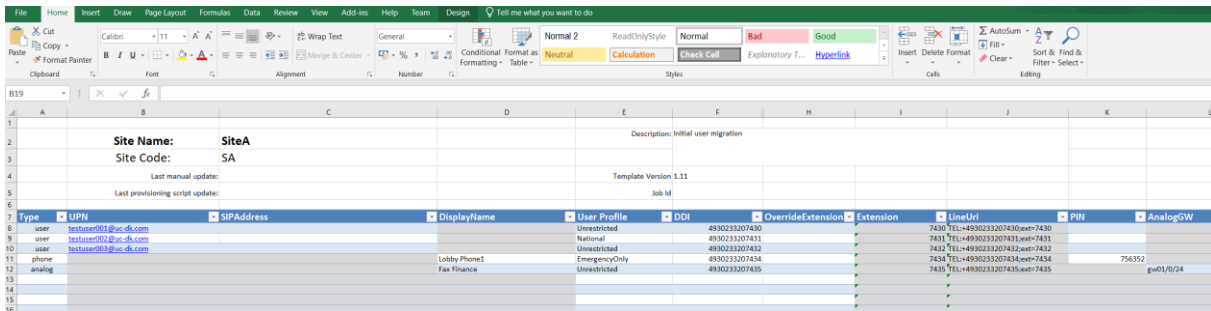


Picture 7 – Call Forwarding Settings of a Sfb user

Administrators will also have access to call forwarding settings of users and Common Area Phones including delegate and team-call group settings.

4.2 Bulk Provisioning

The alpha-CNS UC Provisioning Suite also allows bulk provisioning of users, common area phones and analog devices. Administrators can import Excel sheets into the Web GUI or import them using powershell.



Type	UPN	SIPAddress	DisplayName	User Profile	DDI	OverrideExtension	Extension	LineUri	PIN	AnalogGW
user	testuser01@uc-dk.com			Unrestricted	493033207430		7430	Tel:+493033207430;ext=7430		
user	testuser02@uc-dk.com			National	493033207431		7431	Tel:+493033207431;ext=7431		
user	testuser03@uc-dk.com			Unrestricted	493033207432		7432	Tel:+493033207432;ext=7432		
phone			Lobby Phone3	EmergencyOnly	493033207434		7434	Tel:+493033207434;ext=7434		756352
analog			Fax Finance	Unrestricted	493033207435		7435	Tel:+493033207435;ext=7435		gw01/0/24

Job ID: New Job Site: SiteA Job Description: Error Message:
 Job Type: Add/Update Job Status: In Preperation

Filter:

Choose File No file chosen
Upload
Clear Table

Status / Entity Type	UPN / Display Name / SIP	Profile	DDI / Extension PIN / GatewayPort	
● User	testuser001@uc-dk.com sip:testuser001@uc-dk.com	SiteA / Unrestricted	4930233207430 / 30	Edit ✕
● User	testuser002@uc-dk.com sip:testuser002@uc-dk.com	SiteA / National	4930233207431 / 31	Edit ✕
● User	testuser003@uc-dk.com sip:testuser003@uc-dk.com	SiteA / Unrestricted	4930233207432 / 32	Edit ✕
● CAP	SiteA-Lobby Phone1 sip:SiteA-CAP-LobbyPhone1@uc-dk.com cn=SiteA-CAP-Lobby Phone1,OU=phones,OU=LabUsers,DC...	SiteA / EmergencyOnly	4930233207434 / 34 756352	Edit ✕
● Analog Port	SiteA-Fax Finance sip:SiteA-Analog-FaxFinance@uc-dk.com cn=SiteA-Analog-Fax Finance,OU=phones,OU=LabUsers,DC...	SiteA / Unrestricted	4930233207410 / 10 DEBERVGW01/0/2	Edit ✕

Task
 Status: New
 DDI not found in databaseDDI not found in databaseDDI not found in databaseDDI not found in databaseDDI not found in databaseDDI already assigned to: sip:dk@uc-dk.comDDI already assigned to: sip:dk@uc-dk.com

20
58

--None--
DDI:
PIN:
Insert

Dry Run:
Replace DDI:
Save Job

All data can then be edited. Before the actual job will be submitted to the provisioning engine a sanity check of the provided data will be done, e.g. users do exist already, numbers have been assigned to other users already, or are not in a configured range.

All jobs either individual or bulk jobs can be submitted for immediate execution or they can be scheduled to be executed at any date.

Jobs can also be prepared in advance and saved with status “in-preparation”. This allows to collect and check all user details for site migration in advance.

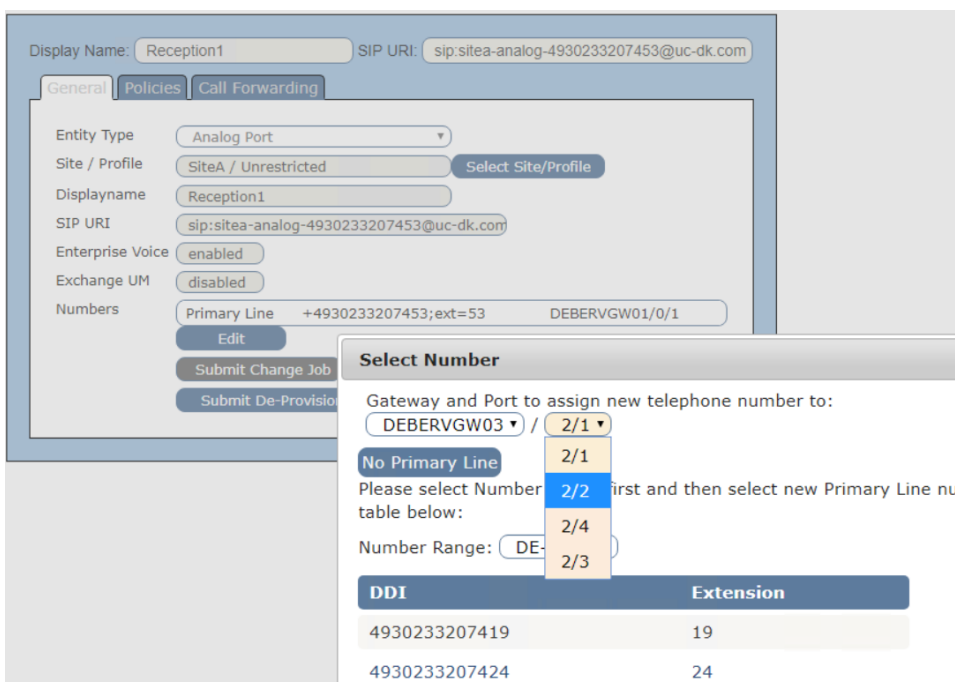
4.3 Automated Provisioning

The alpha-CNS UC Provisioning Suite also allows a fully automated provisioning of SfB users. This would be useful when AD account provisioning is done by other provisioning tools and UC-fy User Manager should only take care of the Lync portion. The UC Provisioning Suite can be set up to monitor certain Active Directory containers and provision new users automatically with SfB accounts, assign them to the right profile and assign numbers if required.

4.4 Voice Gateways

SfB Analogue Devices are still widely used in SfB deployments. They allow an integration of analog ports for Fax, door opener, lift phones or other devices into Skype for Business to use the same PSTN breakouts as other SfB entities with the same call authorization and routing principles.

The alpha-CNS UC Provisioning Suite helps managing deployed voice gateways which provide analog ports to be used for SfB Analogue Devices. Administrators can add Voice Gateways to sites via the Provisioning Portal and when adding new analogue devices, they can be assigned to a physical analogue port on a gateway. The voice gateways will be managed via SNMP v3 and ports will automatically configured with the assigned DDI.



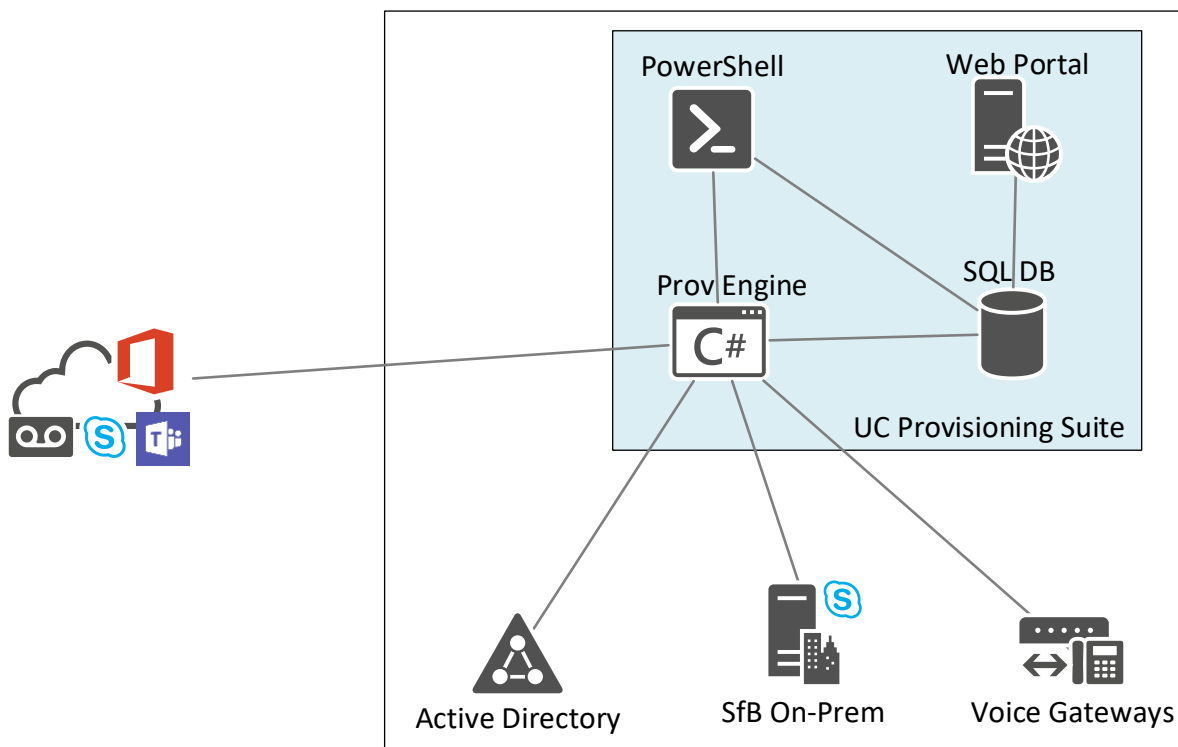
The screenshot shows the configuration page for a gateway named 'Reception1'. The 'Numbers' section is active, displaying the primary line '+4930233207453;ext=53' and the gateway 'DEBERVGW01/0/1'. A 'Select Number' dialog is open, showing a dropdown for the gateway (DEBERVGW03) and a dropdown for the port (2/1). Below this, a table lists available DDI and Extension pairs for the selected gateway and port.

DDI	Extension
4930233207419	19
4930233207424	24

The gateway needs to be prepared once for use with UC Provisioning Suite. All available analogue ports (or other ports to be used with UC Provisioning Suite – like internal BRI ports) will be read automatically by the UC Provisioning Suite.

5 Components

UC Provisioning Suite uses a SQL Server database to store all information. The core is a set of powershell modules, which provide a full set of powershell commands to manage SfB Entities, profiles, sites, numbers and can be used to integrate with existing provisioning tools. A module to manage call forwarding settings for users and Common Area phones including delegates and contact lists (buddy list) is also provided.



To run jobs automatically, e.g. provisioning and maintenance jobs, the Provisioning Engine service must be installed. The Web portal provides an easy to use interface to manage the UC Provisioning suite.

6 Features at a glance

Platforms	- The alpha-CNS Provisioning Suite supports Skype for Business Server, Skype for Business Online and Microsoft Teams.
Interfaces	- Web interface for easy provisioning of users, common area phones and analog devices

	<ul style="list-style-type: none"> - Powershell module for integration into existing provisioning scripts for site and profile management, call forwarding settings and management of provisioning jobs.
Provisioning	<ul style="list-style-type: none"> - Single, bulk, and automated provisioning of SfB entities - Profile controlled provisioning of SfB entities, Exchange Unified Messaging, Call Forwarding settings - Integration into Audiocodes voice gateways (Mediant and Mediapacks) for automated number to analog port assignments - Powerful, distributed provisioning engine to support multi forest and multi-domain environments - Immediate and scheduled execution of jobs
Number Management	<ul style="list-style-type: none"> - Central Number management for all sites - Supports DDI ranges as well as non-DDI numbers with internal extension ranges - Automated import of number status from connected PBXs in Hybrid environments and migration scenarios via connectors
Reporting	<ul style="list-style-type: none"> - Reports provided for: Number Ranges globally or per site, SfB entities with enabled features globally or per site - Export to Excel
Security	<ul style="list-style-type: none"> - Role-based access control (WebGUI access) with local User database or Active Directory based authentication - Delegation of administrative tasks to sites (read-only, user management, administrator) - Re-enforcement of user settings - Full auditing of all jobs and changes