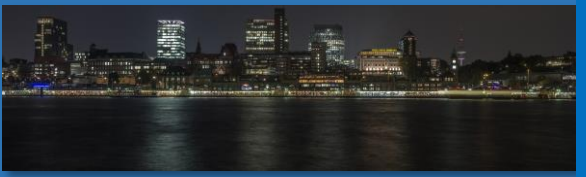
Munich

Cologne

Hamburg



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Unit Leader SfB

@thomaspoett

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Skype for Business Online Dial Plans

Thomas Poett – Office Server and Service MVP

Business Unit Lead SfB – Westcon UCC Ger.

MVP

Microsoft Most Valuable Professional

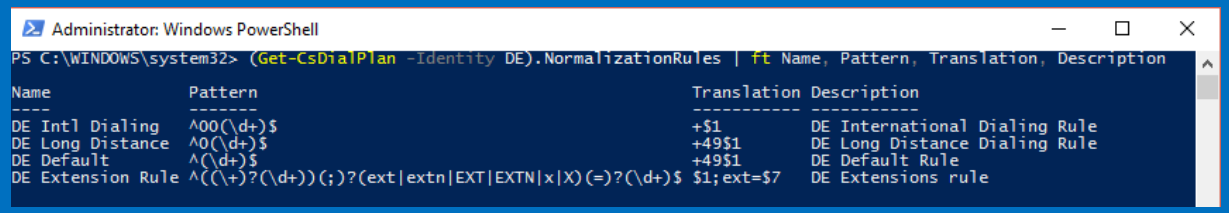
MVP since 2012 +
Microsoft SfB
Elite Team (Redmond)

Agenda

- Tenant Dial Plan cmdlet’s and structure
- General Tenant Dial Plans
- Configuring Tenant Dial Plans
- Troubleshooting
- Further Information's

Why Tenant Dial Plan?

(Get-CsDialPlan -Identity DE).NormalizationRules | ft Name, Pattern, Translation, Description



- Default dial plan in Office 365 has insufficient pattern dialing
- Mostly not matching to area, local and long distance pattern
- e.g. in Germany no EXTN dialing pattern exists
- Can’t co-exist with on-premise PBX for migration (user experiences not good)

Tenant Dial Plan cmdlet’s and structure

Quick reminder ☺

Generics Dial Plan overview

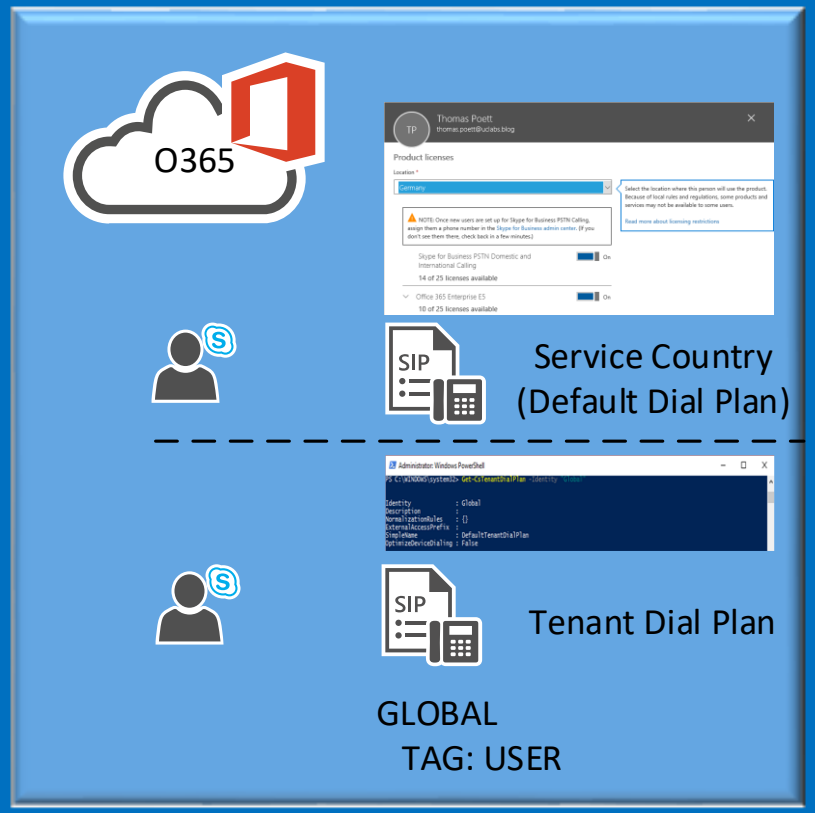
```
PS C:\> Get-Command *tenantdialp*
```

Command	comment
Get-CsEffectiveTenantDialPlan	retrieve an effective tenant dial plan
Get-CsTenantDialPlan	retrieve a tenant dial plan.
Grant-CsTenantDialPlan	assign an existing tenant dial plan to a user
New-CsTenantDialPlan	create a tenant dial plan
Remove-CsTenantDialPlan	remove a tenant dial plan
Set-CsTenantDialPlan	modify an existing tenant dial plan
Test-CsEffectiveTenantDialPlan	test a tenant dial plan

Note: default dial plans and UM dial plans are not reflected in this pitch

Dial Plan Structure in Office 365

Dial Plan Structure



- Default Dial Plan (Service Country) depends on the users O365 "location"
- Tenant Dial Plan can be structured GLOBAL and TAG (USER)
- Service Country merge with GLOBAL or USER Dial Plan
- Tenant Dial Plan overlay the Default Dial Plan

- Up to 25 normalization rules/ Dial Plan

General about Tenant Dial Plans

Thoughts and real life

Key Message

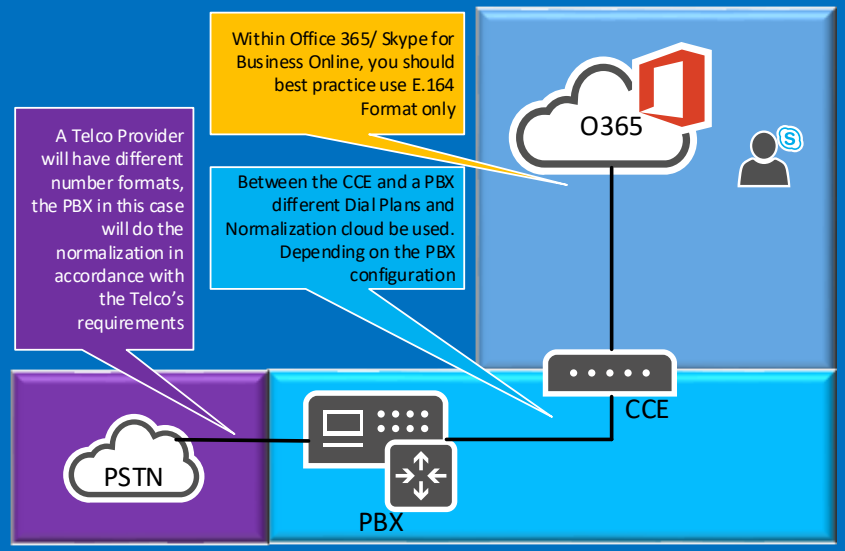
KEEP GOING WITH the E.164 FORMAT

+49 89 1234 5678

- Only if a customer has solid reasons why not going with E.164 use a different approach
- If you don’t use E.164, PSTN Calling will not work as expected
- If you use CCE, further normalization on the SBC might be necessary
- EXTN dialing will further complicate your design

Structure of Dial Plans

Typical logic with PBX



Three areas are identified

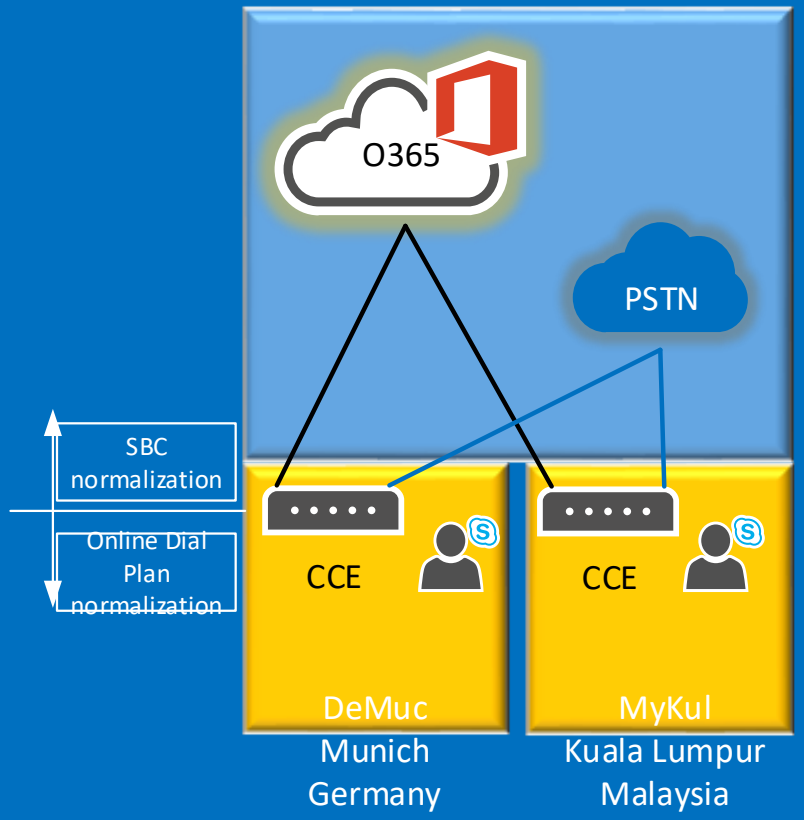
- O365 Tenant Dial Plan
- SBC -> PBX Dial Plan
- PBX –> PSTN Dial Plan

Key take away:

Keep it consistent and reflect user experience

User Experiences comes first

Different country different user experience



PSTN Provider Dial Plan info:

- the German providers accept E.164 format (on SIP Trunk) else 00xx..
- the Malaysian provider must have for area calls 12345678, for domestic 04012345678 and for international 00xx..

Solution:

- In O365 normalize to E.164
- On the SBC normalize to local format the provider expects

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Understanding of RegEx

Helping Hands

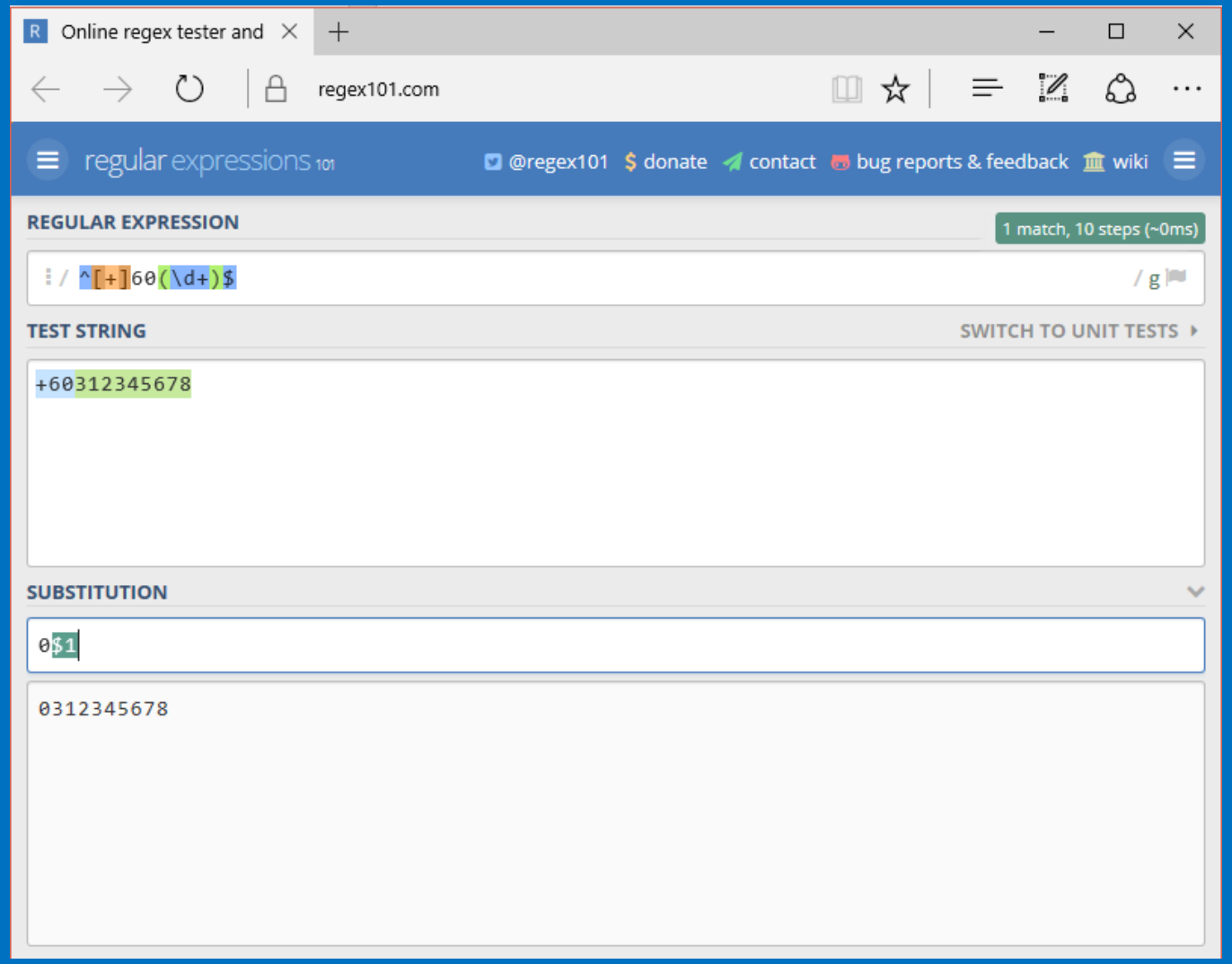
RegEx's can be quite difficult in designing!

Here are my preferred websites supporting you in creating and validating RegEx is:

https://regex101.com/

or

http://www.regextester.com/



Configuring Tenant Dial Plans

Plan and create a Tenant Dial Plan structure with two location

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Prepare for Germany

The expected normalization to those numbers should be like this:

Input: 00141612345678
Output: +141612345678

Input: 03012345678
Output: +493012345678

Input: 12345678
Output: +498912345678

Name	Munich International
Pattern:	^00(\d+)$
Translation:	+$1

Name	Munich Domestic
Pattern:	^0(\d+)$
Translation:	+49$1

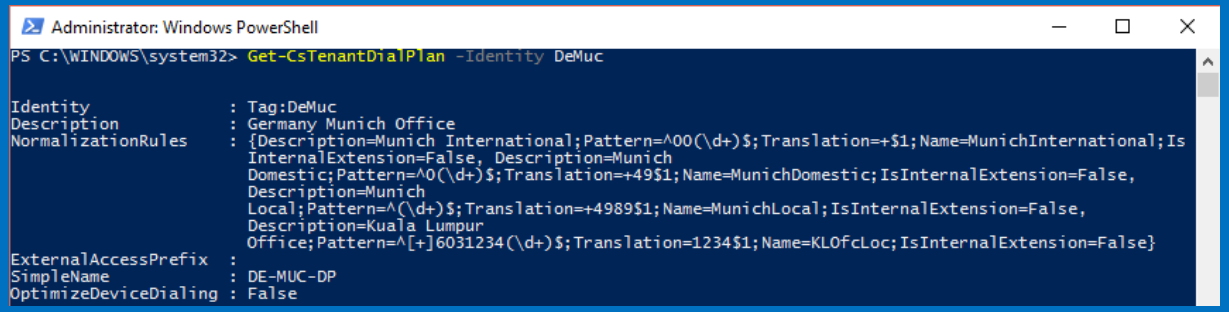
Name	Munich local
Pattern:	^(\d+)$
Translation:	+4989$1

```
New-CsTenantDialPlan -Identity DeMuc -Description "Germany Munich Office" -
SimpleName "DE-MUC-DP"

$NR1 = New-CsVoiceNormalizationRule -Identity DeMuc/MunichInternational -Description
"Munich International" -Pattern '^00(\d+)$' -Translation '+$1' -InMemory
$NR2 = New-CsVoiceNormalizationRule -Identity DeMuc/MunichDomestic -Description
"Munich Domestic" -Pattern '^0(\d+)$' -Translation '+49$1' -InMemory
$NR3 = New-CsVoiceNormalizationRule -Identity DeMuc/MunichLocal -Description "Munich
Local" -Pattern '^(\d+)$' -Translation '+4989$1' -InMemory
$NR4 = New-CsVoiceNormalizationRule -Identity DeMuc/KLOfcLoc -Description "Kuala
Lumpur Office" -Pattern '^[+]6031234(\d+)$' -Translation '1234$1' -InMemory

Set-CsTenantDialPlan -Identity DeMuc -NormalizationRules $NR1
Set-CsTenantDialPlan -Identity DeMuc -NormalizationRules @{Add=$NR2}
Set-CsTenantDialPlan -Identity DeMuc -NormalizationRules @{Add=$NR3}
Set-CsTenantDialPlan -Identity DeMuc -NormalizationRules @{Add=$NR4}

You can use @{Add=$NR1,…) setting in one shot
```



NOTE:
Physical Location is Munich

Prepare for Malaysia

The expected normalization to those numbers should be like this:

```
Input: 0060312345678
Output: 12345678
Input: 0060412345678
Output: 04012345678
Input: 03012345678
Output: 12345678
Input: +60312345678
Output: 12345678
Input: +60412345678
Output: 04012345678

Input: +498912345678
Output: 00498912345678
```

Name	KL local from international
Pattern:	^00603(\d+)$
Translation:	$1

Name	KL domestic from International
Pattern:	^0060(\d+)$
Translation:	0$1

Name	KL local from domestic
Pattern:	^030(\d+)$
Translation:	$1

Name	KL local from International E.164
Pattern:	^[+]603(\d+)$
Translation:	$1

Name	KL domestic from International E.164
Pattern:	^[+]60(\d+)$
Translation:	0$1

Name	KL international from International
Pattern:	^[+](\d+)$
Translation:	00$1

NOTE:
Physical Location is Kuala Lumpur

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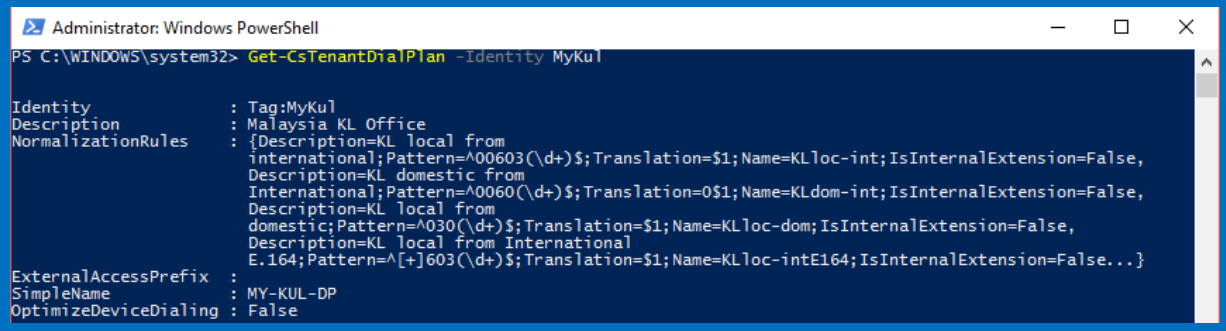
Prepare for Malaysia

The expected normalization to those numbers should be like this:

```
Input: 0060312345678
Output: 12345678
Input: 0060412345678
Output: 04012345678
Input: 03012345678
Output: 12345678
Input: +60312345678
Output: 12345678
Input: +60412345678
Output: 04012345678

Input: +498912345678
Output: 00498912345678
```

```
New-CsTenantDialPlan -Identity MyKul -Description "Malaysia KL Office" -SimpleName "MY-KUL-DP"

$NR1 = New-CsVoiceNormalizationRule -Identity MyKul/KLloc-int -Description "KL local from international" -Pattern '^00603(\d+)$' -Translation '$1' -InMemory
$NR2 = New-CsVoiceNormalizationRule -Identity MyKul/KLdom-int -Description "KL domestic from International" -Pattern '^0060(\d+)$' -Translation '0$1' -InMemory
$NR3 = New-CsVoiceNormalizationRule -Identity MyKul/KLloc-dom -Description "KL local from domestic" -Pattern '^030(\d+)$' -Translation '$1' -InMemory
$NR4 = New-CsVoiceNormalizationRule -Identity MyKul/KLloc-intE164 -Description "KL local from International E.164" -Pattern '^[+]603(\d+)$' -Translation '$1' -InMemory
$NR5 = New-CsVoiceNormalizationRule -Identity MyKul/KLdom-intE164 -Description "KL domestic from International E.164" -Pattern '^[+]60(\d+)$' -Translation '0$1' -InMemory
$NR6 = New-CsVoiceNormalizationRule -Identity MyKul/KLintE164-int -Description "KL international from International" -Pattern '^[+](\d+)$' -Translation '00$1' -InMemory

Set-CsTenantDialPlan -Identity MyKul -NormalizationRules $NR1

Set-CsTenantDialPlan -Identity MyKul -NormalizationRules @{Add=$NR2}
Set-CsTenantDialPlan -Identity MyKul -NormalizationRules @{Add=$NR3}
Set-CsTenantDialPlan -Identity MyKul -NormalizationRules @{Add=$NR4}
Set-CsTenantDialPlan -Identity MyKul -NormalizationRules @{Add=$NR5}
Set-CsTenantDialPlan -Identity MyKul -NormalizationRules @{Add=$NR6}
```



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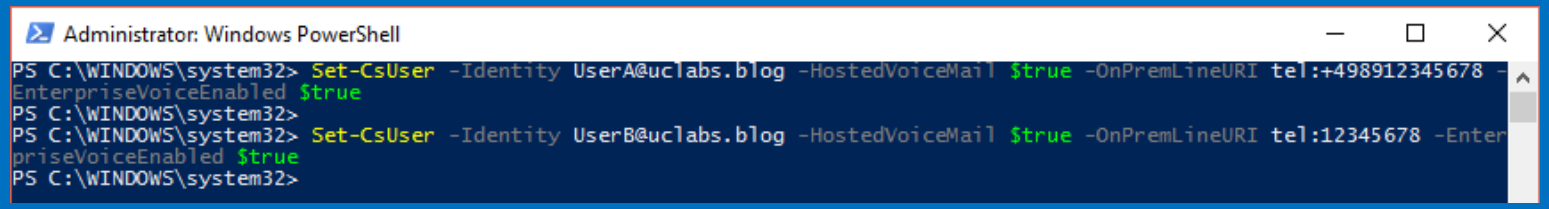
Working with the O365 Users

If you don't work with E.164 format:

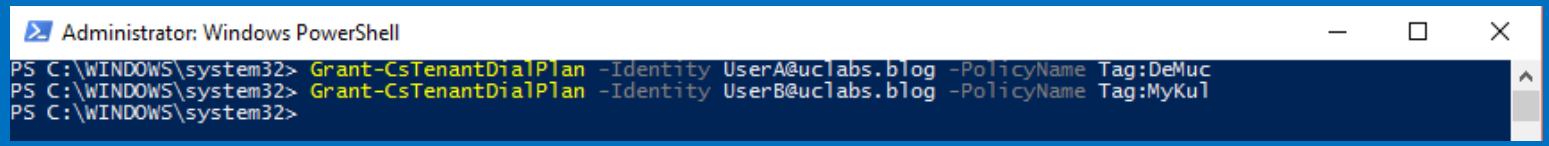
Germany User has: +498912345678

Malaysia User has: 12345678

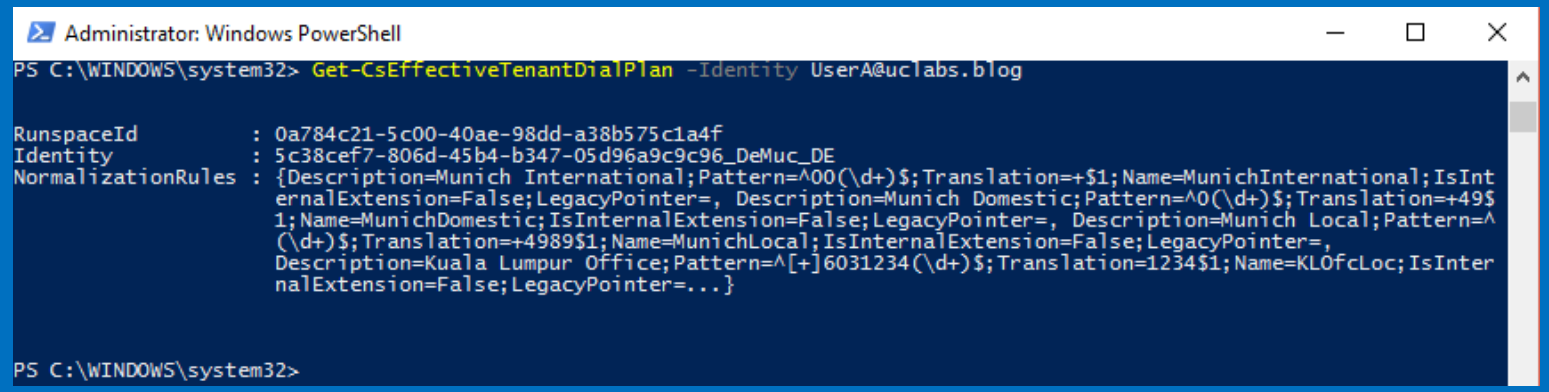
```
Set-CsUser -Identity UserA@uclabs.blog -HostedVoiceMail $true -OnPremLineURI
tel:+498912345678 -EnterpriseVoiceEnabled $true
Set-CsUser -Identity UserB@uclabs.blog -HostedVoiceMail $true -OnPremLineURI
tel:12345678 -EnterpriseVoiceEnabled $true
```




```
Grant-CsTenantDialPlan -Identity UserA@uclabs.blog -PolicyName Tag:DeMuc
Grant-CsTenantDialPlan -Identity UserB@uclabs.blog -PolicyName Tag:MyKul
```




```
Get-CsEffectiveTenantDialPlan -Identity UserA@uclabs.blog
```



Prepare the SBC's at CCE

In Malaysia E.164 is not common

The users in Malaysia won't accept a E.164 normalization as an expected translation behavior.

This requires further necessary action on the SBC component integrated with the Cloud Connector Edition Appliance

PSTN Dial Plan on SBC

`Input: +498912345678  Output: 00498912345678`

Name	Replace + with 00
Pattern:	^[+](\d+)$
Translation:	00$1

`Input: +60312345678  Output: 12345678`

Name	Call to Kuala Lumpur 03
Pattern:	^[+]603(\d+)$
Translation:	$1

`Input: +60412345678  Output: 0412345678`

Name	Call to Malaysia domestic
Pattern:	^[+]60(\d+)$
Translation:	0$1

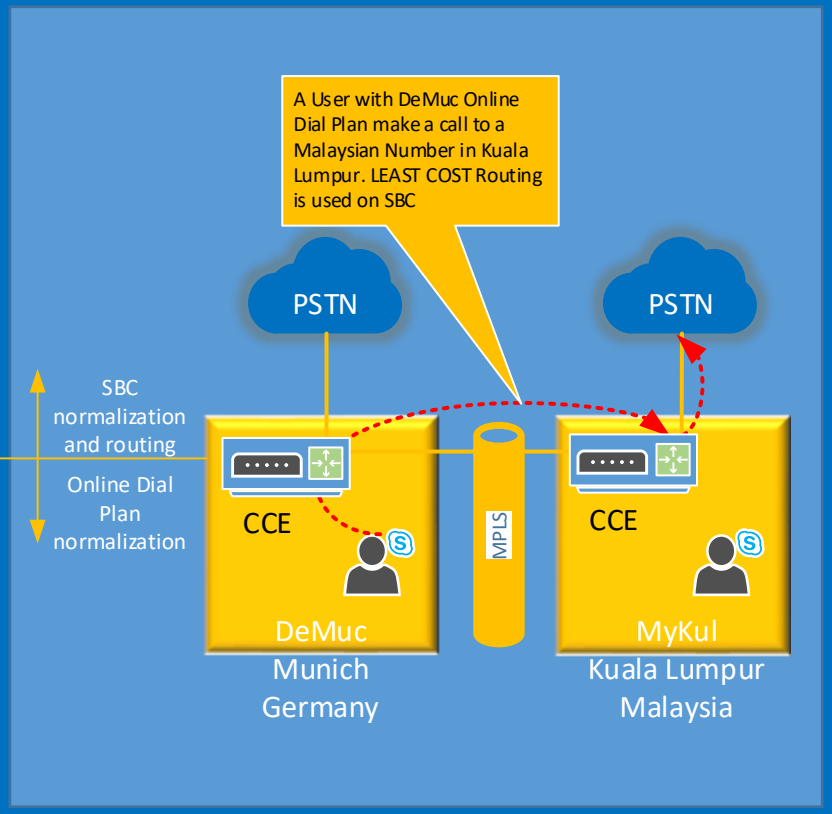
I have not declared anything with Least Cost routing to the ASEAN region, but assuming you might let the Germany User also make Calls to Singapore, which is +65

`Input: +6512345678  Output: 006512345678`

Name	Replace + with 00
Pattern:	^[+](\d+)$
Translation:	00$1

Least Cost Routing with CCE

Use the SBC for least cost call routing



Native O365

- Voice Routing is not implemented in SfB Online – not possible

Alternative

- Normalization on SBC required
- Call Routing on SBC needs to be defined
- SBC can handle additional Dial Plans and Access Lists

Troubleshooting Online Dial Plans

Analyzing Logs

- Run the following cmdlet

```
Get-CsEffectiveTenantDialPlan -Identity UserA@uclabs.blog  | select identity
```

- Examine the output

```
Identity
--------
b822df5f-f234-41cc-b3c4-4614ade4db7b_RedmondDialPlan_US
```

- Read client log
  - Use Snooper
  - Open the most recent .uccapi log file on client PC in %localappdata%\Microsoft\Office\16.0\Lync\Tracing
- Search for “LocationProfileDescription”

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Analyzing Logs

You will see many messages that match your search

Notice the Name value before was the user's region

The Name value (Identity) after is the effective policy name

```
- <LocationProfileDescription xmlns="http://schemas.microsoft.com/2007/03/locationProfileDescription">
    <Name>us</Name>
  + <Rule>
  + <Rule>
  + <Rule>
  + <Rule>
    <OptimizeDeviceDialing>false</OptimizeDeviceDialing>
</LocationProfileDescription>
```

Before

```
- <LocationProfileDescription xmlns="http://schemas.microsoft.com/2007/03/locationProfileDescription">
    <Name>b822df5f-f234-41cc-b3c4-4614ade4db7b_dial-plan-for-redmond_us</Name>
  + <Rule>
  + <Rule>
  + <Rule>
  + <Rule>
  + <Rule>
    <ExternalAccessPrefix>9</ExternalAccessPrefix>
    <OptimizeDeviceDialing>false</OptimizeDeviceDialing>
</LocationProfileDescription>
```

After

Useful Info's and Links

- Tenant Dial Plan Admin Guide
  - https://gallery.technet.microsoft.com/Tenant-Dial-Plans-in-Skype-c80a7dfd
- My Blog and Technet Gallery links
  - www.uclabs.blog

- Skype Operations Framework
  - http://skypeoperationsframework.com
- Skype Academy
  - http://skypeoperationsframework.com/academy
- Skype Preview
  - http://skypepreview.com

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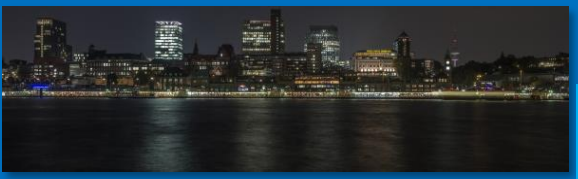

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