hSenidMobile
CO-CREATING THE FUTURE

System Requirement Specification

of Provisioning Module of SDP

for M1, Singapore

Document Version 0.1.0

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APPROVED BY

IN WITNESS WHEREOF, the parties hereto have executed this Agreement through their duly authorized representatives on the dates set forth below:

Signed for and on behalf of hSenid Mobile Solutions	
Signature	
Name	
Title	
Date	
Signed for and on behalf of M1, Singapore	
Signature	
Name	
Title	
Date	

Change Control

Version	Date	Description	Author
0.0.1	24/04/2025	Initial document for SP Provisioning.	Muditha Samarasinghe
0.1.0	17/06/2025	Updated with review comments.	Muditha Samarasinghe

About this document

The purpose of this hSenid Mobile Solutions document is to provide system requirements of the Service Delivery Platform solution.

The intended audience for this document is M1, Singapore and the engineering division of hSenid Mobile Solutions.

Definitions, Acronyms and Abbreviations used

What follows is a list of definitions of all terms, acronyms and abbreviations required to properly interpret this document.

- API – Application Programming Interface
- BAS – Billing As Service
- CDR – Caller Detail Records
- DB – Database
- KBPS – Kilo Bytes Per Second
- MMS – Multimedia Messaging Service
- MMSC - Multimedia Messaging Service Centre
- MO – Mobile Originated
- MT – Mobile Terminated
- NCS – Network Capability Server
- RA – Resource Adapter
- SBB – Service Building Block
- SDP – Service Delivery Platform
- SLA – Service Level Agreement
- SMPP – Short Message Peer to Peer
- SMS – Short Messaging Service
- SMSC – Short Messaging Service Centre
- SWS – Signalling Web Service
- SP – Service Provider
- TPD – Transactions Per Day
- TPS – Transactions Per Second

- VAS – Value Added Service
- WAP – Wireless Access Protocol
- WS – Web Socket
- XMSC – SMSC or MMSC

References used

What follows is a complete list of names and URL's for documents, websites, publications, images and other similar materials used in this document as for references/examples. The objective of using such references is to provide better understanding of the problem and the proposed solution. Please note that hSenidMobile will not include the same exact content or images used as for references/examples in the actual solution.

- M1-SDP-SRS v1.5
- M1-SDP-PROV-UGD-v2.0_Admin_users_
- M1-SDP-PROV-UGD-v2.0_SP_Users_
- SLA_Attributes v0.5.xls

1 Introduction

As a rapidly growing subscriber profile, M1 is looking for a state of the art, comprehensive messaging and content delivery solution which could be used across a wide spectrum such as BAS, SMS, MMS, USSD, SWS and WAPPUSH. The platform will be a middleware from a network point of view, from which all relevant network elements will be interfaced as required during transactional flow. The service delivery platform will be a single, centralized, yet modular solution designed to meet all business requirements across many geographical regions.

1.1 Purpose

The purpose of this SRS is to detail the requirements of M1 with regard to the Provisioning Module of the Service Delivery Platform that will be implemented and delivered by hSenid.

The document serves as a guide to the exact requirements for the proposed features and will be used by hSenid engineering team to develop the product's functional specification, detailing each requirement and its implementation.

1.2 Project Scope

The provisioning module that is described in this document will provide service delivery of content and charge different services rendered to/by the M1 end customers, 3rd party Service Providers that uses M1 as a mediator.

1.2.1 Benefits of the SDP Solution

- This highly flexible and scalable solution will improve the operational efficiency and simplicity of service creation of 3rd party providers and adding new functionalities that could bring competitive advantage to M1.
- The platform will allow M1 to rapidly enhance their service offerings and deliver rich content and applications to mobile subscribers.
- It shall enable delivery and charging of different services and content to the end customers by 3rd party Service Providers with M1 as a mediator with full control via SLA mechanisms embedded within the solution. The process to finalise service level agreements (SLAs) and the subsequent activation of VAS applications to make the service available to mobile subscribers, shall be automated. This business sign-up process shall offer significant cost savings, and reduce time to market for new services, while preserving and maintaining the security and integrity of the core network.

1.2.2 Objectives

The SDP's objective is to act as a bridge between M1's core network and third-party VAS developers and providers incorporating:

- A Secure Access Gateway to the core network.
- A standards-based Web Services and middleware architecture.
- Centralized management of platform and applications integrated with external network elements including billing, rating and payments.
- Synchronous message mediation, routing, throughput control, logging, management and multi-protocol support, provisioning systems, CDR generation and reporting, CDR Query and dashboard as part of the feature set.

1.3 Project Scope

This SRS is organized by, starting from the next chapter and each subsequent chapter detailing the Provisioning module of SDP.

2 Provisioning Module

Provisioning module of SDP, which manages SP details and application shall be a secure HTTPS based web application, which will be used for registering new SPs and adding new applications for their profiles. The comprehensive GUI based provisioning module shall enable admin users to create and provision SP profiles with SLA(s) by providing necessary authentication details. SP users shall also be able to make new application requests with SLA(s). Application provisioning will be handled by the Provisioning Module, while the user accounts for accessing this module will be created and managed via the Admin Module.

Provisioning Module shall have the following features.

- Service Provider Profile Management

This shall provide functionality to carry out administration tasks such as creating, modifying, searching, disabling and enabling SP profiles.

- Application Management

This shall provide functionalities that can be performed after the SP profile is created. Once the profile is created, SP will be able to request for one or more applications under the selected service provider. Once the SP request for application(s), the users in each state shall be able check the SLA and proceed with provisioning the application(s).

Users shall be able to access the Provisioning Module, with access rights varying according to their assigned roles (Please refer Appendix C- User Roles and Permissions for further information).

User	Access Rights
SDP-Admin	Create, edit, view, and search SP profiles and applications. Manage users, groups, modules, permissions. Suspend/ reactivate/ retire testbed and production apps. View dashboard. Manage the requested applications in all states upon the SP user creating an application request.
SP Users	Create, modify request applications and view, search both SP and application details. Create, search, modify and discard application drafts and CRs.

	Test the application request at the *Draft-Request* state and in the *Active-Testbed* state.
Marketing User	View and search SP profiles and applications. Configure charging SLAs. Approve or discard the application request at the *REQUESTED_APPLICATION* state.
Customer Care User	View and search SP profiles and applications.
Testbed-Operations User	View/ search SP profiles and applications. Configure testbed SLAs. Approve or discard the application request at *APPROVED_APPLICATION_REQUEST* state, *Pre-Active-Testbed* state. Manage the suspension/ re-activation/ retirement of the application request in any Testbed state.
Production-Operations User	View/ search SP profiles and applications. Configure production SLAs. Configure the application request in *Pre-Active-Production* state, *Pre-Provisioned-Production* state, *Approved-Application Request* state, *Limited-Production* state, *Active-Production* state, *Suspended-Production* state. Manage suspension/ re-activation/ retirement in any Production state.
SMSC Engineer	Verify and configure the relevant parameters of SMS and WAPPUSH in the application request at the *Pre-Active Testbed* state (Testbed configurations) and at the *Pre-Provisioned Production* state (Production configurations).
MMSC Engineer	Verify and configure the relevant parameters of MMS in the application request at the *Pre-Active Testbed* state (Testbed configurations) and at the *Pre-Provisioned Production* state (Production configurations).
Prepaid IN Engineer	Verify and configure the relevant parameters of SMS, MMS, BAS, WAPPUSH and USSD in the application request at the *Pre-Active Testbed* state (Testbed configurations) and at the *Pre-Provisioned Production* state (Production configurations).

Postpaid Billing Engineer	Verify and configure the relevant parameters of SMS, MMS, BAS, WAPPUSH and USSD in the application request at the *Pre-Active Testbed* state (Testbed configurations) and at the *Pre-Provisioned Production* state (Production configurations)
Network Admin	Verify and configure the relevant parameters of SMS, MMS, BAS, WAPPUSH and USSD in the application request at the *Pre-Active Testbed* state (Testbed configurations) and at the *Pre-Provisioned Production* state (Production configurations).
USSD Engineer	Verify and configure the relevant parameters of USSD in the application request at the *Pre-Active Testbed* state (Testbed configurations) and at the *Pre-Provisioned Production* state (Production configurations).

2.1 Service Provider Profile Management

REQ-SP-PRO 1: SP SLA is an agreement between SDP and service provider which should be enforced before the application SLA during provisioning.

REQ-SP-PRO 2: Each of the SP SLAs contain general information on SP and information per NCS.

REQ-SP-PRO 3: SLA defined at SP level shall serve as the limit for application SLA. i.e. application SLA cannot be defined above SP SLA level restrictions.

REQ-SP-PRO 4: The SP provisioning UI shall allow users to perform the following actions, based on the access rights assigned:

- Register new SP
- View/Edit SP profile
- Search SPs

REQ-SP-PRO 5: Operations users with the user role MANAGE_OPERATIONS_LEVEL_SLA_PARAMETERS shall have the authority to create a SP.

Note:
To denote which user role is allowed to configure each parameter in SP and application SLA the following abbreviations are used in the SLA parameter lists in *SLA_Attributes v0.5.xls* (Appendix B):

OPERATIONS_LEVEL – MANAGE_OPERATIONS_LEVEL_SLA_PARAMETERS
APPLICATION_LEVEL – MANAGE_APPLICATION_LEVEL_SLA_PARAMETERS
SYSTEM_LEVEL – SLA parameter shall be auto-generated by the system

2.1.1 Register New Service Provider

REQ-NSP-REG 1: Upon clicking on the “Provisioning” tab available in the header, SDP admin shall be directed to the Provisioning module home page as follows.

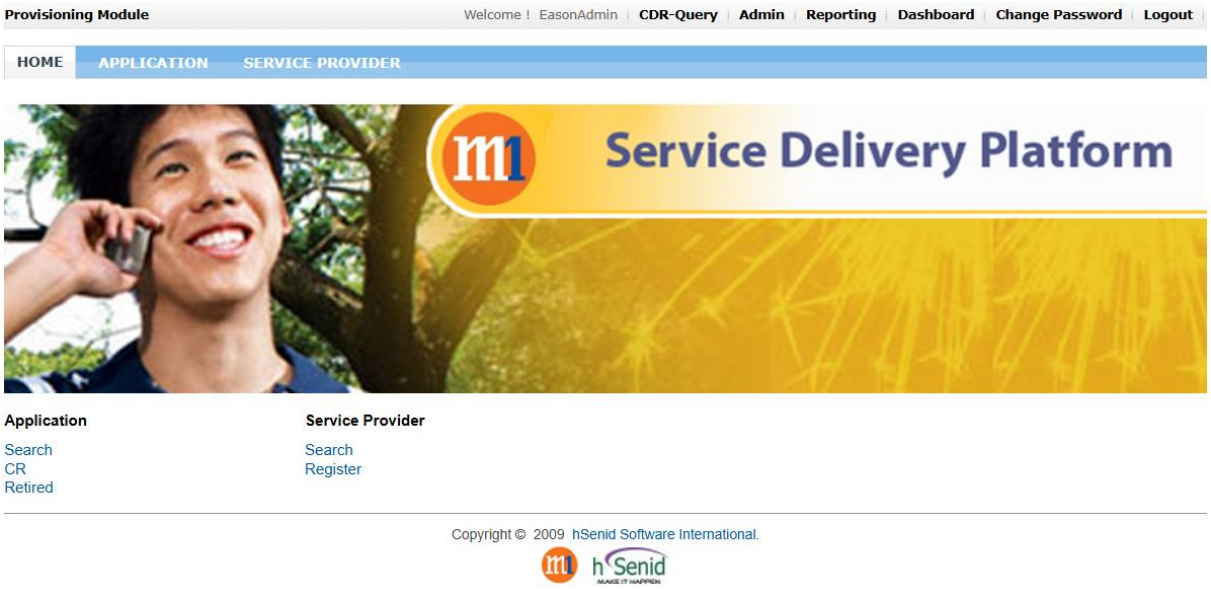


Figure 2-1: Provisioning Module Home Page for Admin

REQ-NSP-REG 2: Users with the ROLE_CREATE_SP permission shall be able to register a new SP by providing the required information upon,

1. Selecting the SERVICE PROVIDER tab and clicking on the “Register” link.
2. Clicking on the “Register” link under “Service Provider” which appears in the Home page of the Provisioning Module.

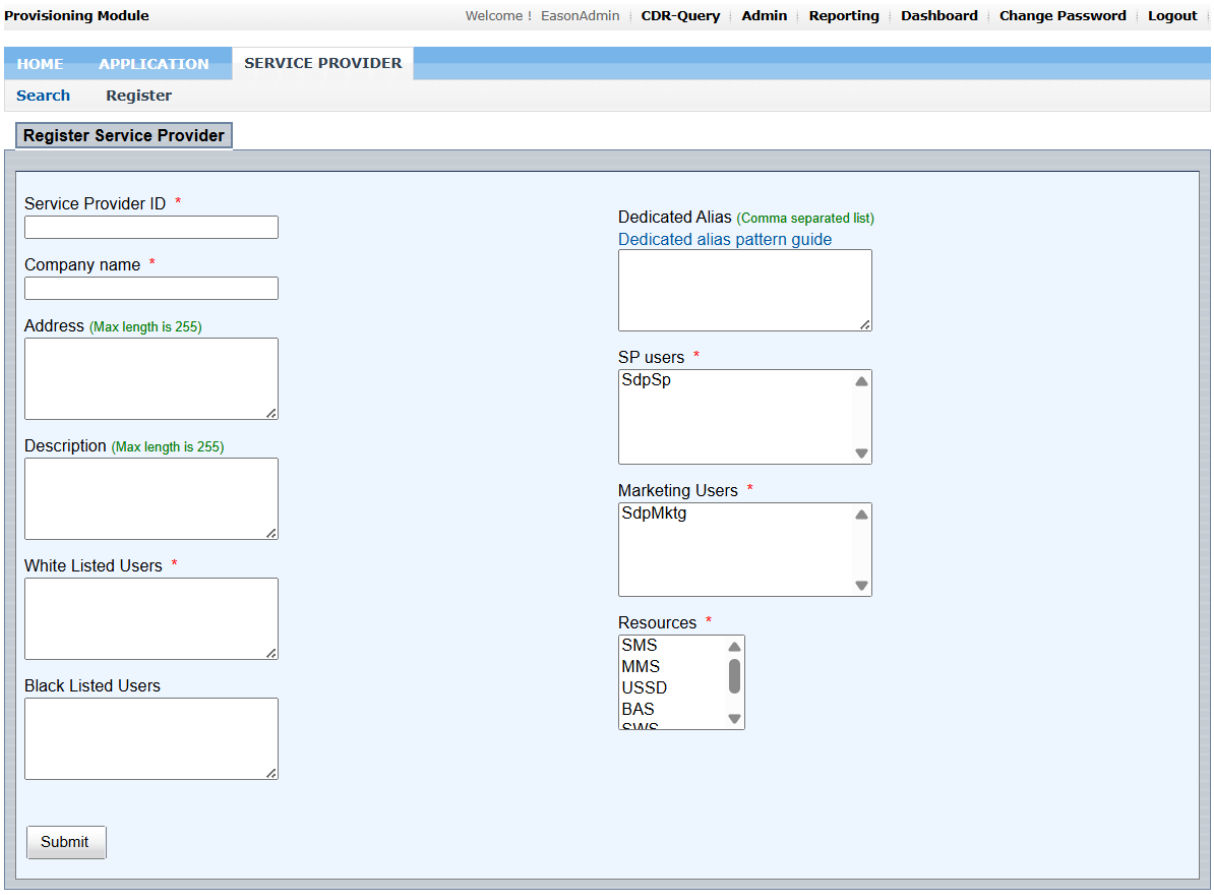


Figure 2-2: Register Service Provider Form

Note: Initially, the general attributes of SP SLA must be configured (Please refer the section *4.1 General SLA* for the list of parameters or *General* tab of *SLA_Attributes_v0.5.xls* for further information).

Field	Description	Type	Validation	Error Response
Service Provider ID	Used to capture the service provider ID.	String	- Mandatory. - Unique. Cannot enter a Service Provider Id which already exists. - Should have 8 digits.	If not entered: "Service provider Id required" If already used: "Service Provider Id already exists" If not 8 digits: "Please enter 8 digit number for Service Provider Id."

Company name	Used to capture the name of the company.	String	- Mandatory. - Maximum length 50 characters. - Cannot enter a company name which already exists.	If not entered: “Company Name required” If maximum length exceeded: “Company Name should be less than 50 characters” If the entered company name already exists: “Service Provider already exists”
Address	Used to capture the address of the company.	String	- Optional. - Maximum length 255 characters.	If maximum length exceeded: “Address should be less than 255 characters”
Description	Used to capture the description about the SP.	String	- Optional. - Maximum length 255 characters.	If maximum length exceeded: “Description should be less than 255 characters”
White Listed Users	Used to capture the white-listed phone numbers.	String	- Mandatory. - Maximum length 15 digits. - Minimum length 8 digits. - Multiple entries should be separated by commas. - If a whitelisted phone number is entered to black listed phone numbers. - If the same MSISDN is duplicated in the list.	If less than the minimum length, exceed the maximum length: “Description should be less than 255 characters” If the following conditions are not met: - Maximum length 15 digits. - Minimum length 8 digits. - Multiple entries should be separated by commas. “Should be comma-separated phone numbers having 15 digits as maximum and 8 digits as minimum”

				If a whitelisted phone number is entered to black listed phone numbers: “You can not have a White-listed user in the Blacklisted user list.” If the same MSISDN is duplicated in the list: “Msisdn are Duplicate in White listed Msisdn.”
Black Listed Users	Used to capture the black-listed phone numbers.	String	- Optional. - Maximum length 15 digits. - Minimum length 8 digits. - Multiple entries should be separated by commas. -	
Dedicated Alias	Used to capture the alias dedicated for the respective service provider across all the SP Apps. Will support regular expressions (case sensitive) and alphanumeric (e.g H3lloPromo7).	String	- Optional. - Multiple entries should be separated by commas. - Dedicated alias that has already been entered for one SP should not be allowed to be used by another SP at the same time.	If already entered dedicated alias of an SP entered by another SP: “Dedicated alias/es - [Alias Name] or a wildcard format is already in use” If the entered regex is not valid: “Invalid regular expression/s {Dedicated Alias} please enter valid regular expression.”

SP users	Used to select SP-typed User(s) to be assigned for the new SP. (Use Shift or Ctrl keys to select more than one SP-user) The list of SP users shall be obtained and listed out by referring to the SpUsersGroup.	multi-select list box	- Mandatory. - At least one SP-typed user should be selected.	If no SP-typed users selected: "Select atleast one User Name."
Marketing Users	Used to select marketing user(s) who is allowed to monitor the SP and applications. Using Shift or Ctrl keys, user shall be able to select more than one marketing user. The list of marketing users shall be obtained and listed out by referring to the MarketingUsersGroup.	multi-select list box	- Mandatory. - At least one marketing user should be selected.	If no marketing users selected: "Allowed Marketing Users required."
Resources	Select the resources to be allowed for the SP. Using Shift or Ctrl keys, user shall be able to select more than one marketing user. Available options: • SMS • MMS • BAS • WAPPUSH	multi-select list box	- Mandatory. - At least one resource should be selected.	If no resources selected: "Select atleast one resource."

	• USSD • SWS These options are maintained in a DB table.			

REQ-NSP-REG 2.1: When SP accounts get Terminated, Suspended or Removed, the alias associated with the SP account shall no longer be tied to that account.

REQ-NSP-REG 3: Upon entering the necessary details and clicking on the **Submit** button, the following confirmation screen will appear with the entered details.

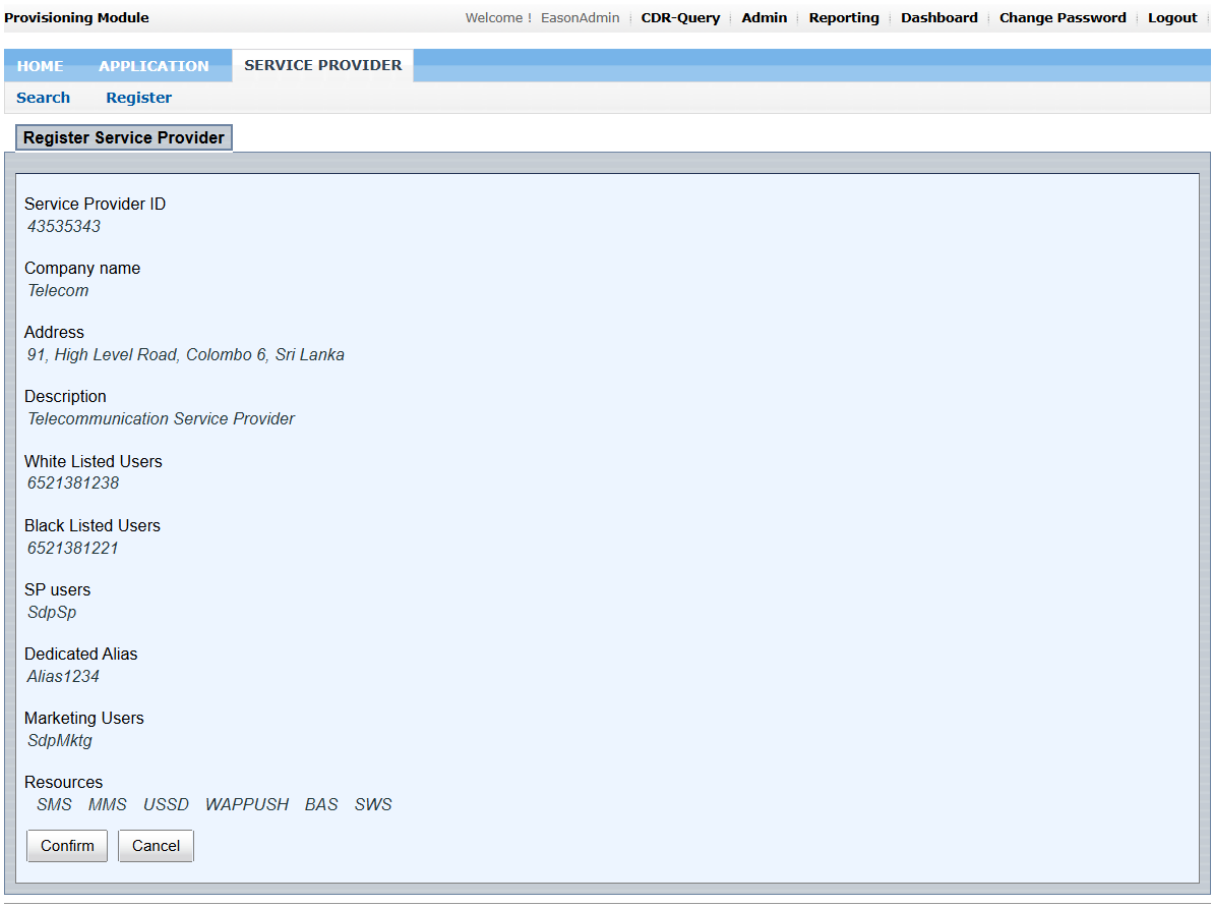


Figure 2-3: Confirmation Screen with Submitted SP Details

REQ-NSP-REG 4: If multiple phone numbers are included for the “Black Listed Users” field or the character count of the phone number or expression entered is greater than 30, upon submitting the entered information, a link to view the respective information shall appear.

REQ-NSP-REG 5: Upon cancelling the confirmation page (Figure 3-3), the entered information shall be disregarded and the user shall be directed to the Provisioning module initial page (Figure 3-1).

REQ-NSP-REG 6: Once the user verifies the entered details and clicks upon the **Confirm** button, the SP profile shall be created.

REQ-NSP-REG 6.1: If the profile is successfully created, the following success message shall be displayed, prompting the user to configure the Service Level Agreement (SLA) for each specified resource.

“Service Provider Profile created successfully. Please configure the Service Level Agreement (SLA) for each resource.”

Figure 2-4: Successful SP Profile Creation and SLA Configuration

REQ-SP-REG 7: It is mandatory to configure NCS SLA parameters in order to complete SP provisioning.

REQ-SP-REG 7.1: If the user clicks upon the Submit button, without configuring any of the SLA for each resource, the following error message shall be displayed.

“{List of NCS resources for which SLA has not been configured} SLA should be configured”

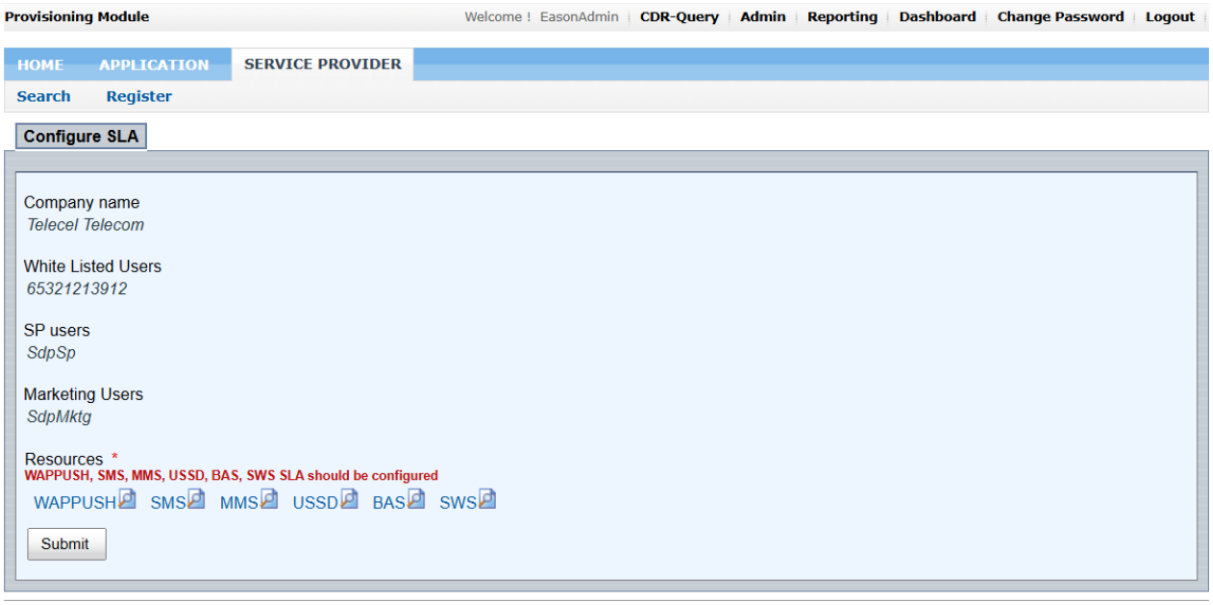


Figure 2-5: Error Message for Not Configuring SLA

REQ-SP-REG 8: For NCS (SMS/ MMS/ BAS/ WAPPUSH/ USSD/ SWS) selected when configuring the general attributes, the relevant parameters should be configured for each NCS by clicking upon the respective link (Please refer *SMS*, *MMS*, *Billing As Service* and *WAP Push* tabs of *SLA_Attributes v0.5.xls (Appendix B)* parameters listed for SP SLA).

2.1.1.1 Configuration of SLA for SMS

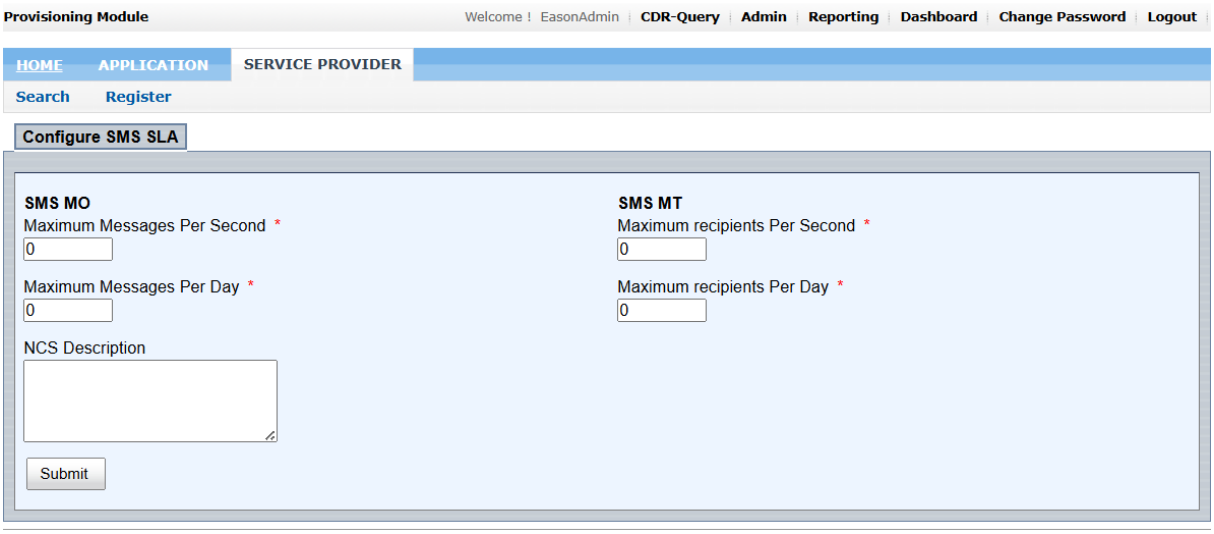


Figure 2-6: Configurations for SMS SLA

REQ-SLA-SMS 1: Upon clicking on the SMS link available under Resources, operations user shall be able to define the following information (Please refer the Section 4.2 SMS SLA for further information).

Field	Description	Type	Validation	Error Response
SMS MO				
Maximum Messages Per Second	Used to specify the maximum number of mobile originated SMS per second that the service provider is capable of handling.	String	Mandatory. Should be a digit. Default value should be 0. Should be less than 1,000.	If not entered or negative values entered: “Maximum messages per second required.” If a value other than a digit entered: “Please enter a valid input.” If a value greater than 1,000 entered: “Max message per Second should not be greater than 1000 message per second.”
Maximum Messages Per Day	Used to specify the maximum number of mobile originated SMS per day that the	String	Mandatory. Should be a digit.	If not entered or negative values entered: “Maximum messages per day required.”

	service provider is capable of handling.		Default value should be 0. Should be less than 50,000,000.	If a value other than a digit entered: "Please enter a valid input." If a value greater than 50,000,000 entered: "Max message per day should not be greater than 50000000 message per day." If the value entered for Maximum Messages Per Second is greater than Maximum Messages Per Day: "Max message per day should be greater than message per Second."
NCS Description	Used to capture the description entered by the user regarding the NCS configuration.	String	Optional. Should be less than 255 characters.	If character count 255 exceeded: "NCS Description is too long."
SMS MT				
Maximum recipients Per Second	Used to specify the maximum number of recipients that the service provider is capable of delivering SMS messages to per second.	String	Mandatory. Should be a digit. Default value should be 0. Should be less than 1,000.	If not entered or negative values entered: "Maximum messages per second required." If a value other than a digit entered: "Please enter a valid input." If a value greater than 1,000 entered: "Max message per Second should not be greater than 1000 message per second."
Maximum recipients Per Day	Used to specify the maximum number of recipients that the service provider is	String	Mandatory. Should be a digit.	If not entered or negative values entered: "Maximum messages per day required."

	capable of delivering SMS messages to per day.		Default value should be 0. Should be less than 50,000,000.	If a value other than a digit entered: “Please enter a valid input.” If a value greater than 50,000,000 entered: “Max message per day should not be greater than 50000000 message per day.” If the value entered for Maximum Messages Per Second is greater than Maximum Messages Per Day: “Max message per day should be greater than message per Second.”

REQ-SLA-SMS 2: The following success message shall be displayed after submitting the SLA configurations for SMS and it shall be displayed in a different color as indicated below.

“SMS SLA for Service Provider configured successfully”

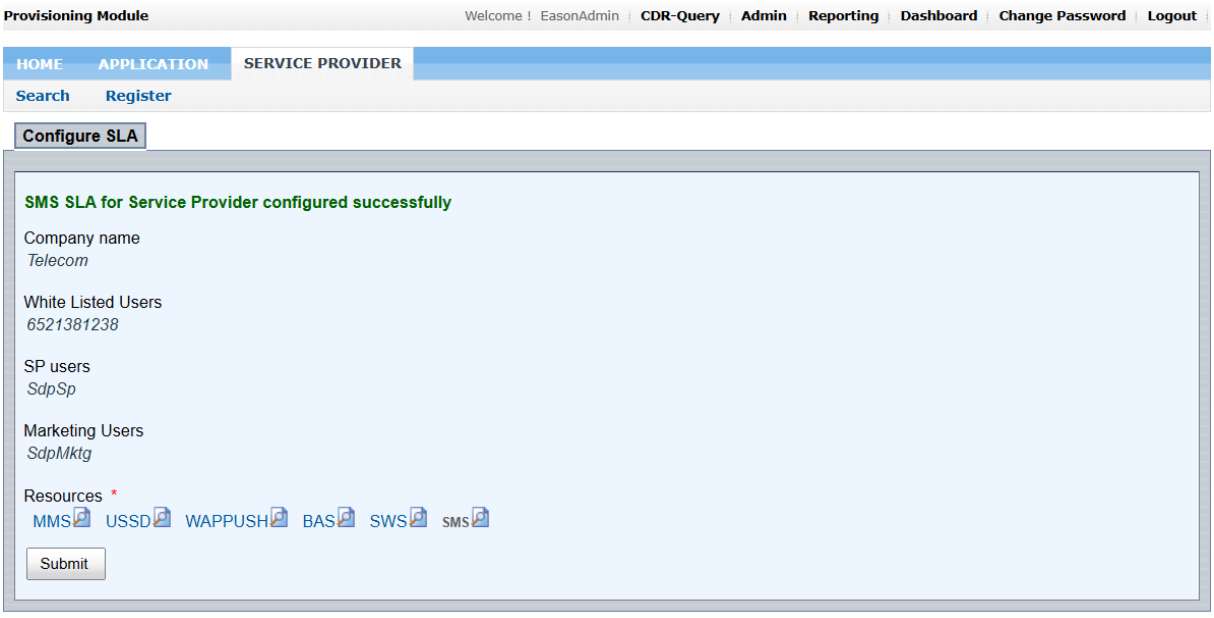


Figure 2-7: Success Message for Configuring SMS SLA

2.1.1.2 Configuration of SLA for MMS

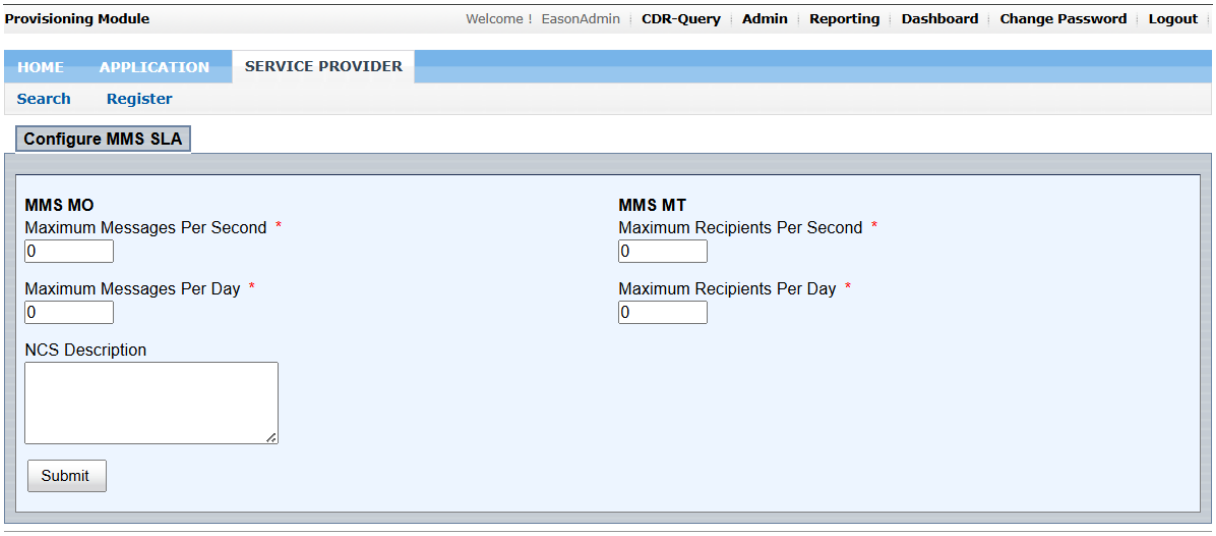


Figure 2-8: Configurations for MMS SLA

REQ-SLA-MMS 1: Upon clicking on the MMS link available under Resources, operations user shall be able to define the following information (Please refer the Section 4.3 MMS SLA for further information).

Field	Description	Type	Validation	Error Response
MMS MO				
Maximum Messages Per Second	Used to specify the maximum number of mobile originated MMS per second that the service provider is capable of handling.	String	Mandatory. Should be a digit. Default value should be 0. Should be less than 100.	If not entered or negative values entered: “Maximum messages per second required.” If a value other than a digit entered: “Please enter a valid input.” If a value greater than 100 entered: “Max message per Second should not be greater than 100 message per second.”
Maximum Messages Per Day	Used to specify the maximum number of mobile originated	String	Mandatory. Should be a digit.	If not entered or negative values entered: “Maximum messages per day required.”

	MMS per day that the service provider is capable of handling.		Default value should be 0. Should be less than 50,000,000.	If a value other than a digit entered: “Please enter a valid input.” If a value greater than 50,000,000 entered: “Max message per day should not be greater than 50000000 message per day.” If the value entered for Maximum Messages Per Second is greater than Maximum Messages Per Day: “Maximum messages per day should be greater than maximum messages per second.”
NCS Description	Used to capture the description entered by the user regarding the NCS configuration.	String	Optional. Should be less than 255 characters.	If character count 255 exceeded: “NCS Description is too long.”
MMS MT				
Maximum recipients Per Second	Used to specify the maximum number of recipients that the service provider is capable of delivering MMS messages to per second.	String	Mandatory. Should be a digit. Default value should be 0. Should be less than 100.	If not entered or negative values entered: “Maximum messages per second required.” If a value other than a digit entered: “Please enter a valid input.” If a value greater than 100 entered: “Max message per Second should not be greater than 100 message per second.”
Maximum recipients Per Day	Used to specify the maximum number of recipients that the	String	Mandatory. Should be a digit.	If not entered or negative values entered: “Maximum messages per day required.”

	service provider is capable of delivering MMS messages to per day.		Default value should be 0. Should be less than 50,000,000.	If a value other than a digit entered: “Please enter a valid input.” If a value greater than 50,000,000 entered: “Max message per day should not be greater than 50000000 message per day.” If the value entered for Maximum Messages Per Second is greater than Maximum Messages Per Day: “Max message per day should be greater than message per Second.”

REQ-SLA-MMS 2: The following success message shall be displayed after submitting the SLA configurations for MMS.

“MMS SLA for Service Provider configured successfully”

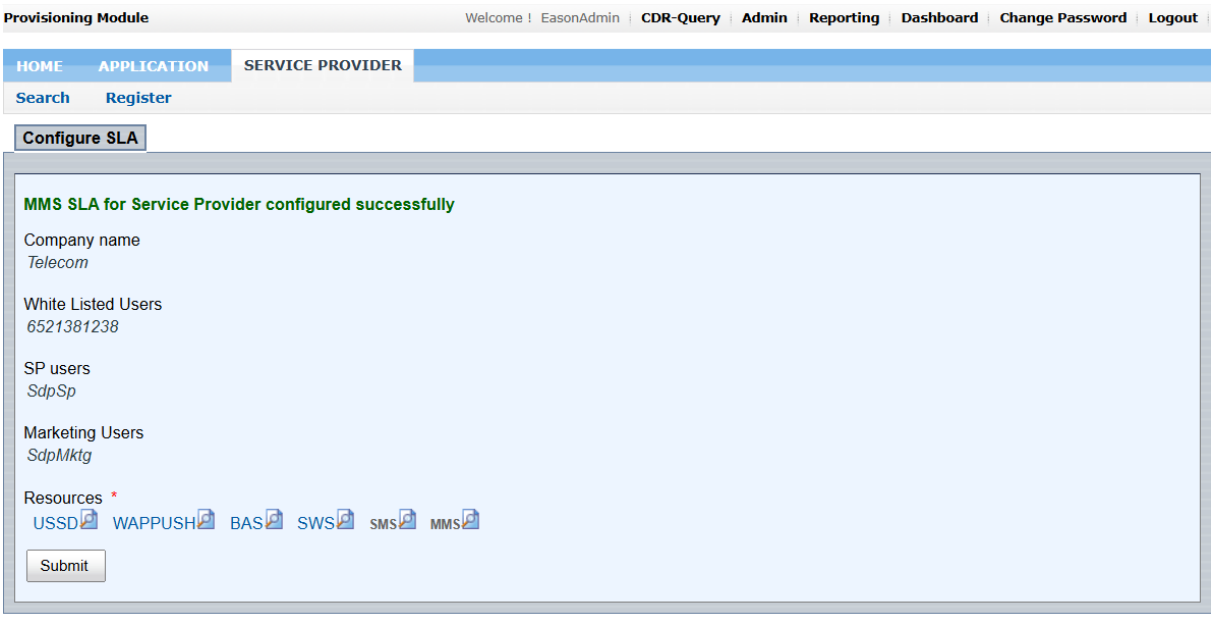


Figure 2-9: Success Message for Configuring MMS SLA

2.1.1.3 Configuration of SLA for USSD

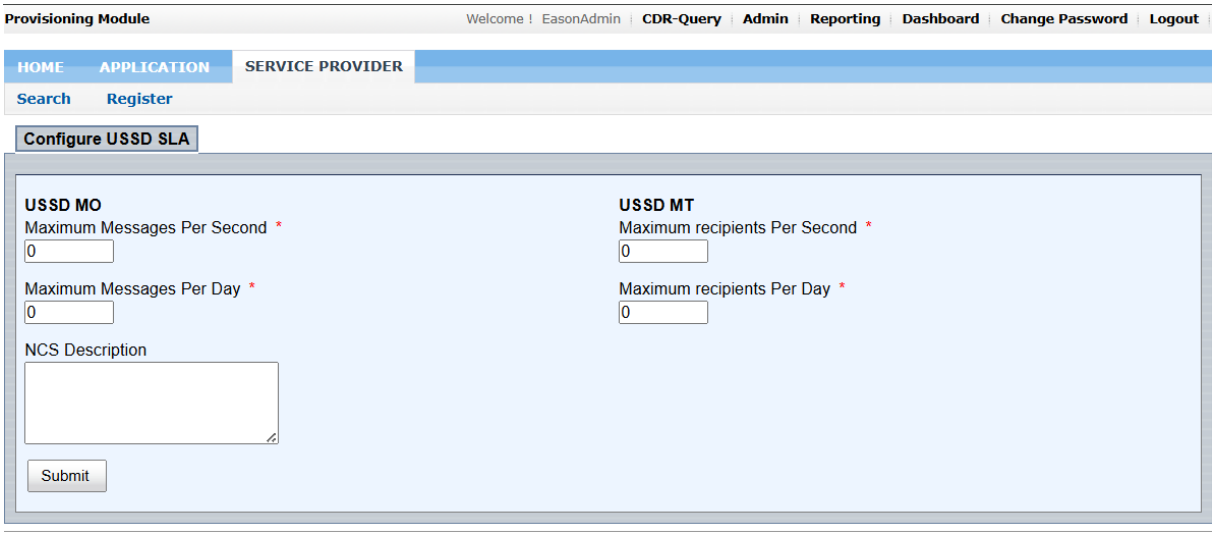


Figure 2-10: Configurations for USSD SLA

REQ-SLA-USSD 1: Upon clicking on the USSD link available under Resources, operations user shall be able to define the following information (Please refer the Section 4.6 USSD SLA for further information).

Field	Description	Type	Validation	Error Response
USSD MO				
Maximum Messages Per Second	Used to specify the maximum number of mobile originated USSD messages per second that the service provider is capable of handling.	String	Mandatory. Should be a digit. Default value should be 0. Should be less than 1,000.	If not entered or negative values entered: “Maximum messages per second required.” If a value other than a digit entered: “Please enter a valid input.” If a value greater than 1,000 entered: “Max message per Second should not be greater than 1000 message per second.”
Maximum Messages Per Day	Used to specify the maximum number of mobile originated	String	Mandatory. Should be a digit.	If not entered or negative values entered: “Maximum messages per day required.”

	USSD per day that the service provider is capable of handling.		Default value should be 0. Should be less than 50,000,000.	If a value other than a digit entered: “Please enter a valid input.” If a value greater than 50,000,000 entered: “Max message per day should not be greater than 50000000 message per day.” If the value entered for Maximum Messages Per Second is greater than Maximum Messages Per Day: “Max message per day should be greater than message per Second.”
NCS Description	Used to capture the description entered by the user regarding the NCS configuration.	String	Optional. Should be less than 255 characters.	If character count 255 exceeded: “NCS Description is too long.”
SMS MT				
Maximum recipients Per Second	Used to specify the maximum number of recipients that the service provider is capable of delivering USSD messages to per second.	String	Mandatory. Should be a digit. Default value should be 0. Should be less than 1,000.	If not entered or negative values entered: “Maximum messages per second required.” If a value other than a digit entered: “Please enter a valid input.” If a value greater than 1,000 entered: “Max message per Second should not be greater than 1000 message per second.”
Maximum recipients Per Day	Used to specify the maximum number of recipients that the service provider is	String	Mandatory. Should be a digit.	If not entered or negative values entered: “Maximum messages per day required.”

	capable of delivering USSD messages to per day.		Default value should be 0. Should be less than 50,000,000.	If a value other than a digit entered: "Please enter a valid input." If a value greater than 50,000,000 entered: "Max message per day should not be greater than 50000000 message per day." If the value entered for Maximum Messages Per Second is greater than Maximum Messages Per Day: "Max message per day should be greater than message per Second."

REQ-SLA-USSD 2: The following success message shall be displayed after submitting the SLA configurations for USSD.

"USSD SLA for Service Provider configured successfully"

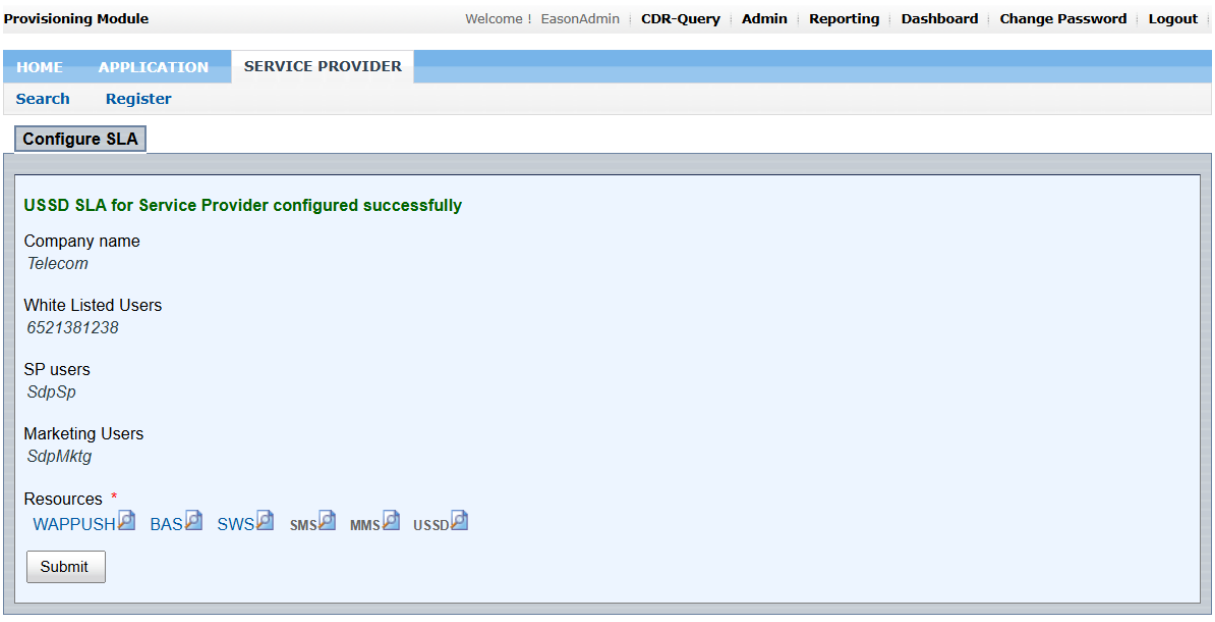


Figure 2-11: Success Message for Configuring USSD SLA

2.1.1.4 Configuration of SLA for WAPPUSH

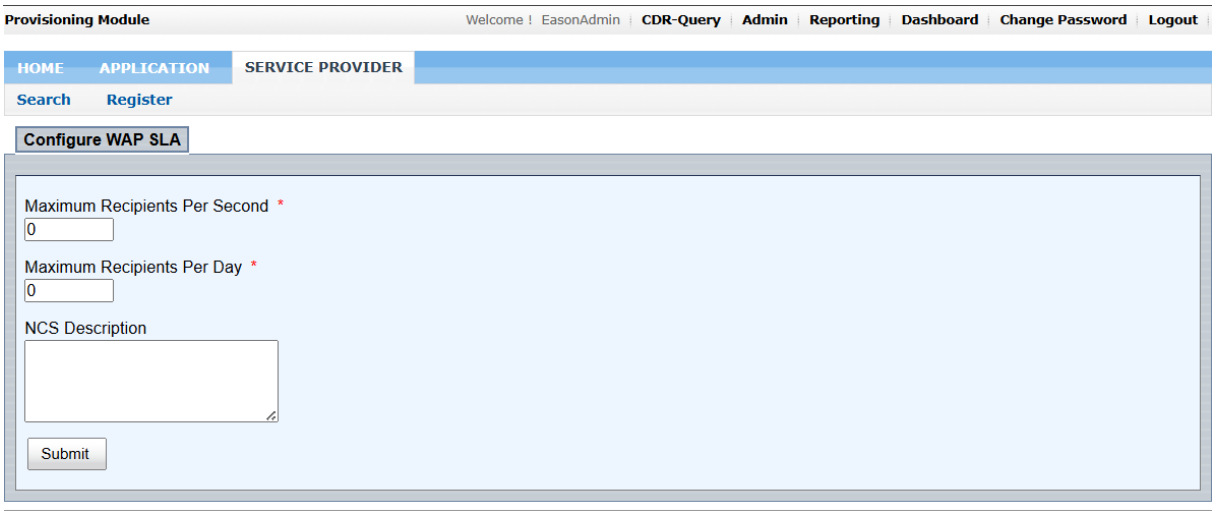


Figure 2-12: Configurations for WAPPUSH SLA

REQ-SLA-WAPPUSH 1: Upon clicking on the WAPPUSH link available under Resources, operations user shall be able to define the following information for each service provider (Please refer the Section 4.5 WAPPUSH SLA for further information).

Field	Description	Type	Validation	Error Response
Maximum Recipients Per Second	Used to specify the maximum number of recipients to whom WAP Push messages can be delivered per second.	String	Mandatory. Should be a digit. Default value should be 0. Should be less than 100.	If not entered or negative values entered: “Max Recipients per Second required.” If a value other than a digit entered: “Please enter a valid input.” If a value greater than 100 entered: “Max recipients per second should not be greater than 100 recipients per second.”
Maximum Recipients Per Day	Used to specify the maximum number of recipients to whom WAP Push messages	String	Mandatory. Should be a digit. Default value should be 0.	If not entered or negative values entered: “Max Recipients per Day required.”

	can be delivered per day.		Should be less than 50,000,000.	If a value other than a digit entered: "Please enter a valid input." If a value greater than 50,000,000 entered: "Max recipients per day should not be greater than 500000000 recipients per day." If the value entered for Maximum Recipients Per Second is greater than Maximum Recipients Per Day: "Max recipients per day should be greater than Max recipients per second."
NCS Description	Used to capture the description entered by the user regarding the NCS configuration.	String	Optional. Should be less than 255 characters.	If character count 255 exceeded: "NCS Description is too long."

REQ-SLA-WAPPUSH 2: The following success message shall be displayed after submitting the SLA configurations for WAP-PUSH.

"WAP-PUSH SLA for Service Provider configured successfully"

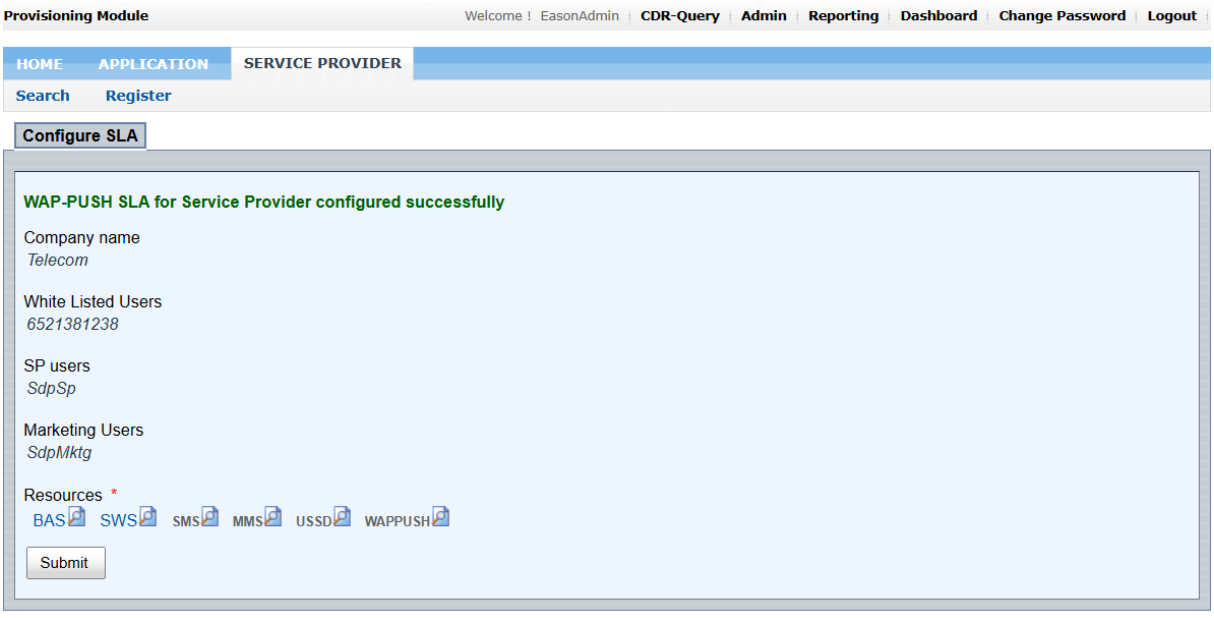


Figure 2-13: Success Message for Configuring WAP-PUSH SLA

2.1.1.5 Configuration of SLA for BAS

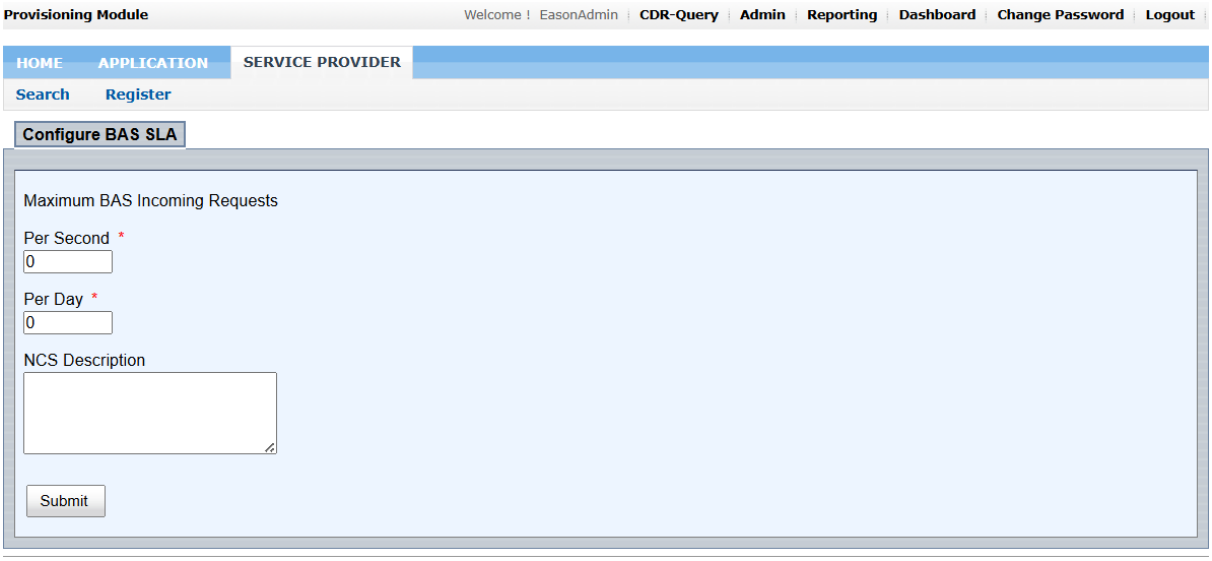


Figure 2-14: Configurations for BAS SLA

REQ-SLA-BAS 1: Upon clicking on the BAS link available under Resources, operations user shall be able to define the following information (Please refer the Section 4.4 BAS SLA for further information).

Field	Description	Type	Validation	Error Response
Maximum BAS Incoming Requests Per Second	Used to specify the maximum number of Billing-as-a-Service incoming requests per second that the service provider is capable of handling.	String	Mandatory. Should be a digit. Default value should be 0. Should be less than 100.	If not entered or negative values entered: “Maximum BAS Incoming Requests per second required.” If a value other than a digit entered: “Please enter a valid input.” If a value greater than 100 entered: “Max billing per second should not be greater than 100 billing per second.”
Maximum BAS	Used to specify the maximum number of	String	Mandatory. Should be a digit.	If not entered or negative values entered: “Maximum

Incoming Requests Per Day	Billing-as-a-Service incoming requests per day that the service provider is capable of handling.		Default value should be 0. Should be less than 50,000,000.	BAS Incoming Requests per day required." If a value other than a digit entered: "Please enter a valid input." If a value greater than 50,000,000 entered: "Max billing per day should not be greater than 50000000 billing per day." If the value entered for Maximum BAS Incoming Requests Per Second is greater than Maximum BAS Incoming Requests Per Day: "Maximum BAS Incoming Requests per day should be greater than maximum requests per second."
NCS Description	Used to capture the description entered by the user regarding the NCS configuration.	String	Optional. Should be less than 255 characters.	If character count 255 exceeded: "NCS Description is too long."

REQ-SLA-BAS 2: The following success message shall be displayed after submitting the SLA configurations for BAS.

"BAS SLA for Service Provider configured successfully"

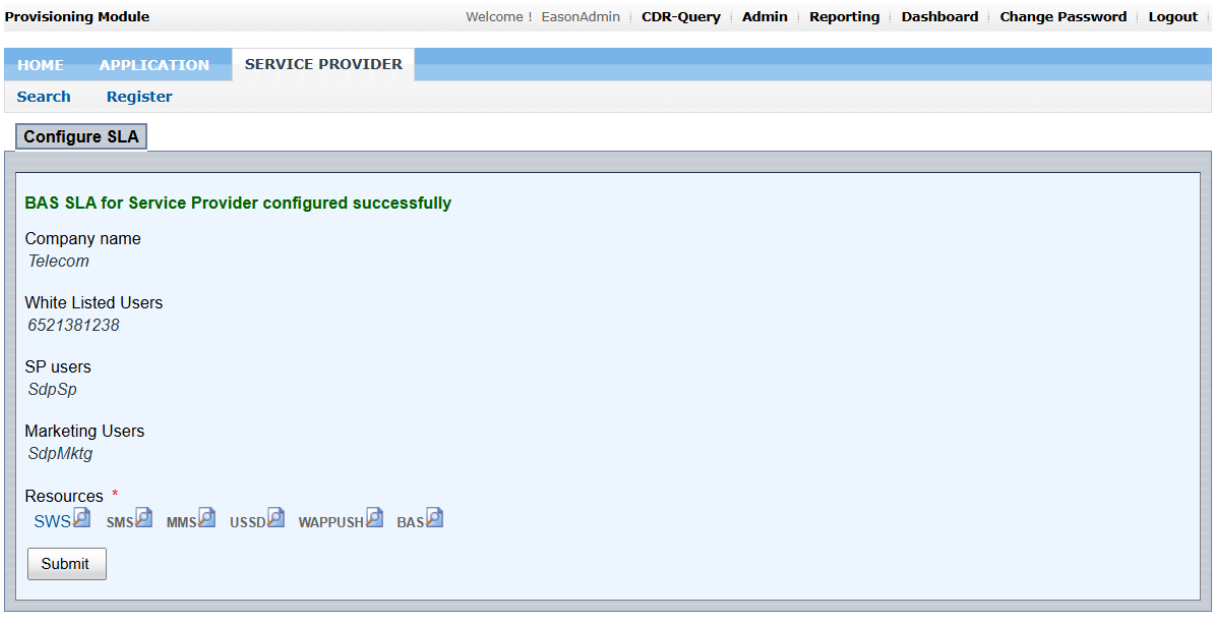


Figure 2-15: Success Message for Configuring BAS SLA

2.1.1.6 Configuration of SLA for SWS

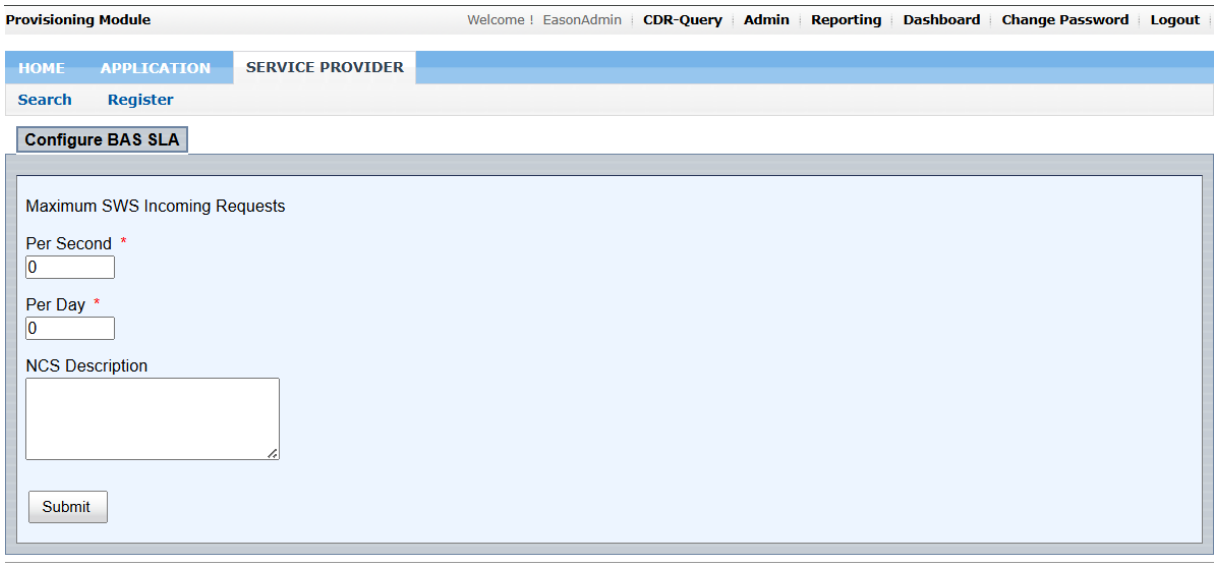


Figure 2-16: Configurations for SWS SLA

REQ-SLA-SWS 1: Upon clicking on the SWS link available under Resources, operations user shall be able to define the following information.

Field	Description	Type	Validation	Error Response
Maximum SWS Incoming	Used to specify the maximum number of SWS incoming	String	Mandatory. Should be a digit.	If not entered or negative values entered: “Maximum

Requests Per Second	requests per second that the service provider is capable of handling.		Default value should be 0. Should be less than 1,000.	SWS Incoming Requests per second required." If a value other than a digit entered: "Please enter a valid input." If a value greater than 1,000 entered: "Maximum SWS per second should be less than 1,000."
Maximum SWS Incoming Requests Per Day	Used to specify the maximum number of SWS incoming requests per day that the service provider is capable of handling.	String	Mandatory. Should be a digit. Default value should be 0. Should be less than 50,000,000.	If not entered, entered 0 or negative value entered: "Maximum SWS Incoming Requests per day required." If a value other than a digit entered: "Please enter a valid input." If a value greater than 50,000,000 entered: "Maximum SWS per second should be less than 50,000,000." If the value entered for Maximum SWS Incoming Requests Per Second is greater than Maximum SWS Incoming Requests Per Day: "Maximum SWS incoming requests per day should be greater than maximum requests per second."
NCS Description	Used to capture the description entered by the user regarding the NCS configuration.	String	Optional. Should be less than 255 characters.	If character count 255 exceeded: "NCS Description is too long."

REQ-SLA-SWS 2: The following success message shall be displayed after submitting the SLA configurations for SWS.

“SWS for Service Provider configured successfully”

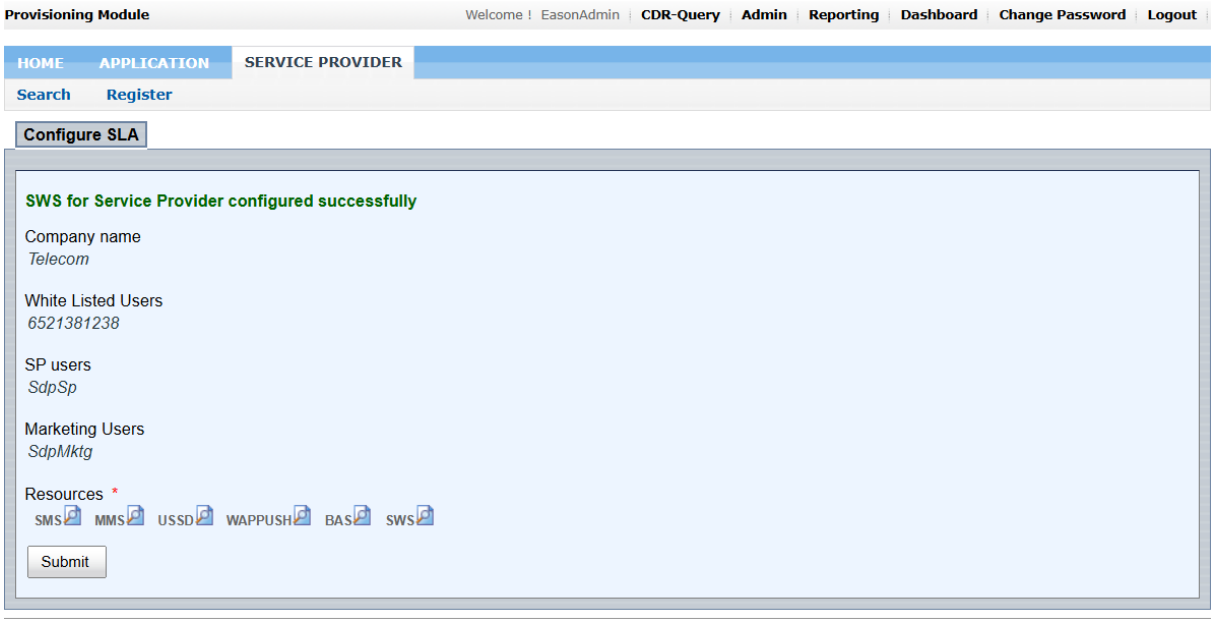


Figure 2-17: Success Message for Configuring SWS SLA

REQ-SP-REG 9: Configured SLA of the selected resources are shown in a different colour and the SDP Admin can edit them by clicking on each link.

REQ-SP-REG 10: Once the SLA parameters are configured for each selected resource under the respective Service Provider (SP), the SP profile will be created in SDP, and a success message shall be displayed as follows.

“Service Provider registered successfully”

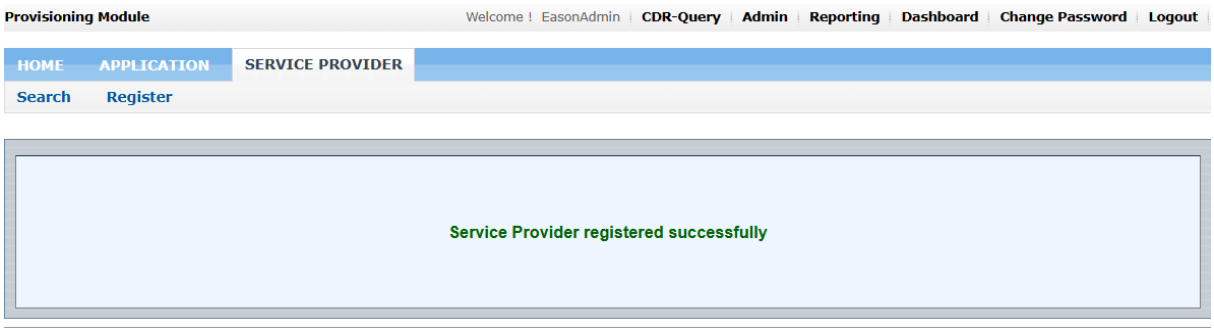


Figure 2-18: Success Message for Configuring SLA of all the Resources

REQ-SP-REG 11: A configuration email shall be sent from SDP-Admin to SP and Marketing users with the SP details.

Subject	From	To	Cc	Content Template
[M1-SDP] New ServiceProvider <serviceprovider-name> Created	SDP-Admin@m1.com.sg	SP-User	Marketing-User	New ServiceProvider with the following details is created. ServiceProvider CompanyName : [serviceprovider_companyname] ServiceProvider Description : [serviceprovider_description] ServiceProvider Address : [serviceprovider_address] Provisioning UI Url : [provisioning_ui_url] Remarks : [remarks]

2.1.2 Search a Service Provider

REQ-SEA-ESP 1: Users with the ROLE_SEARCH_SP permission shall be able to search for the existing SP by providing the Service Provider Company Name upon,

1. Selecting the Service Provider tab and clicking on the “Search” link.
2. Clicking on the “Search” link under “Service Provider” which appears in the Home page of the Provisioning Module.

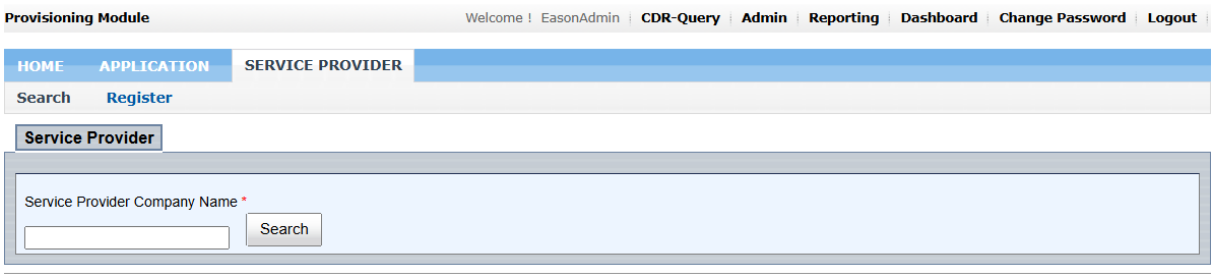


Figure 2-19: Search SP Initial Page

REQ-SEA-ESP 2: Upon entering the SP company name in the search bar and clicking on the Search button, the operations-user shall view with the following information.

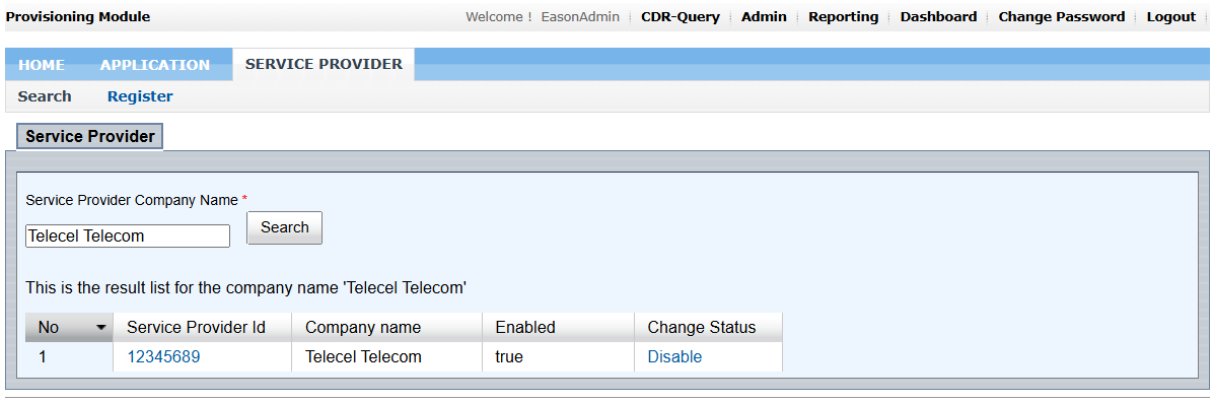


Figure 2-20: Search Results of SPs

Column	Description
No	Auto incremented serial number for each search result.
Service Provider ID	Service Provider ID entered by the operations-user during the SP profile registration.
Company name	Company name entered by the operations-user during the SP profile registration.

Enabled	Indicates whether the SP profile is enabled or not. If enabled, the value displayed would be true. If disabled, the value displayed would be false.
Change Status	Provides the Operations-User the ability to disable the SP profile if it is currently enabled and vice versa. If the current SP profile status is enabled, the option displayed would be Disable. If the current SP profile status is Disabled, the option displayed would be Enable.

REQ-SEA-ESP 3: Upon clicking on the Service Provider Id, the admin user shall be able to view the following information regarding the Service Provider.

REQ-SEA-ESP 3.1: All the information except the Service Provider Id shall remain editable for the admin.

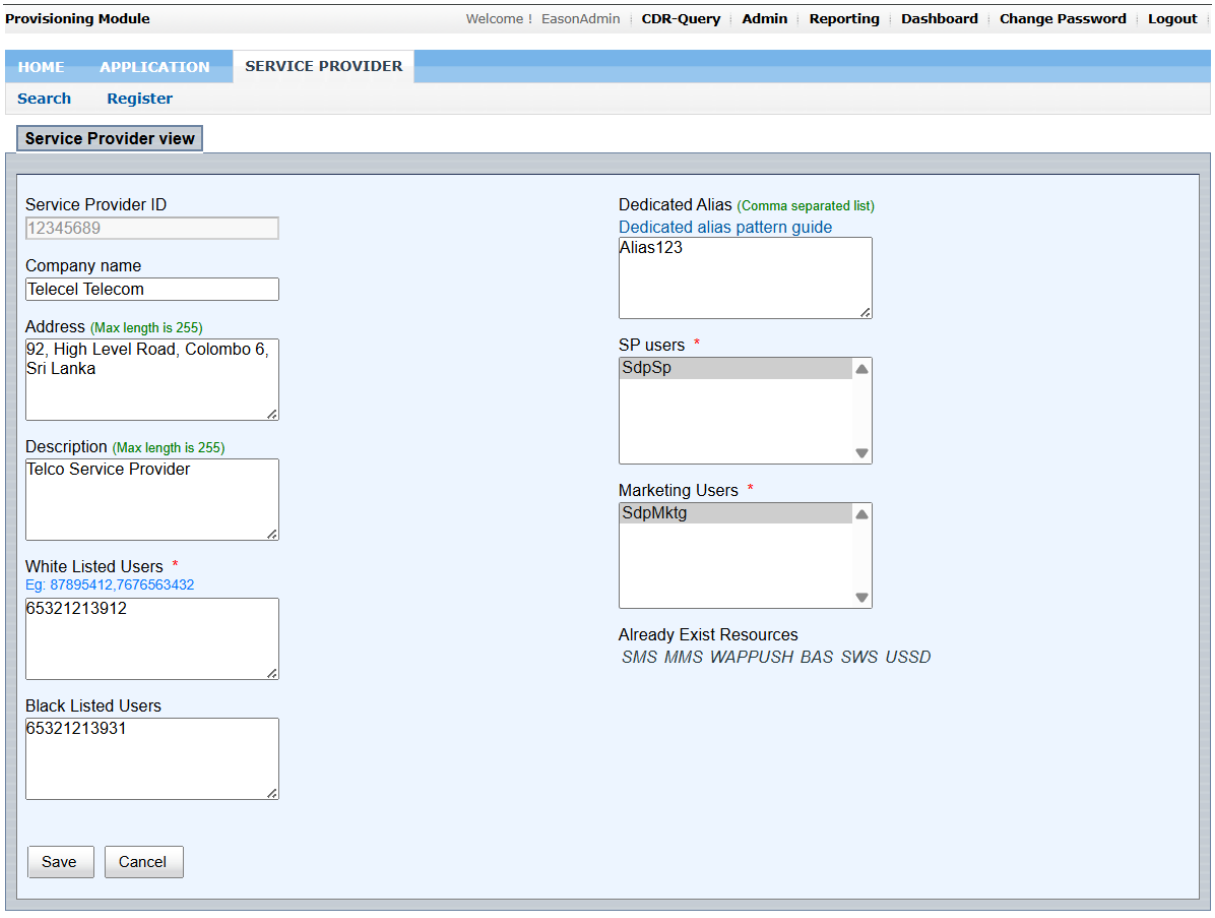


Figure 2-21: SP Information View

REQ-SEA-ESP 3.2: Upon clicking on each NCS links, the existing values for each SLA parameters shall be displayed (Figure 3-6, Figure 3-8, Figure 3-10, Figure 3-12, Figure 3-14, Figure 3-16).

REQ-SEA-ESP 4: Upon saving, the operations-user shall be able to change any SLA parameters by clicking on the respective link under the Resources section.

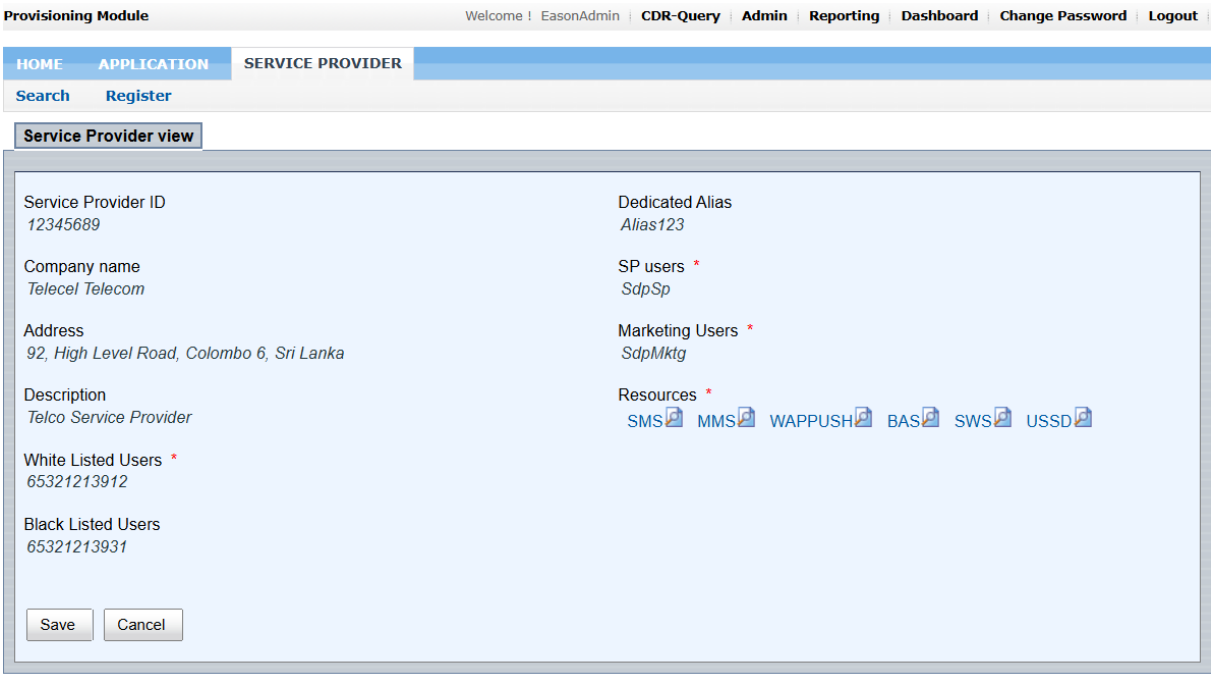


Figure 2-22: SP SLA View

2.1.3 Service Provider Dashboard

REQ-SP-DSB 1: Users with the ROLE_VIEW_DASHBOARD permission shall be able to view a dashboard displaying relevant information for a specific service provider, by searching using the service provider company name.

Figure 2-23: SP Search for Dashboard View

REQ-SP-DSB 2: The following information shall be available with regards to the selected SP.

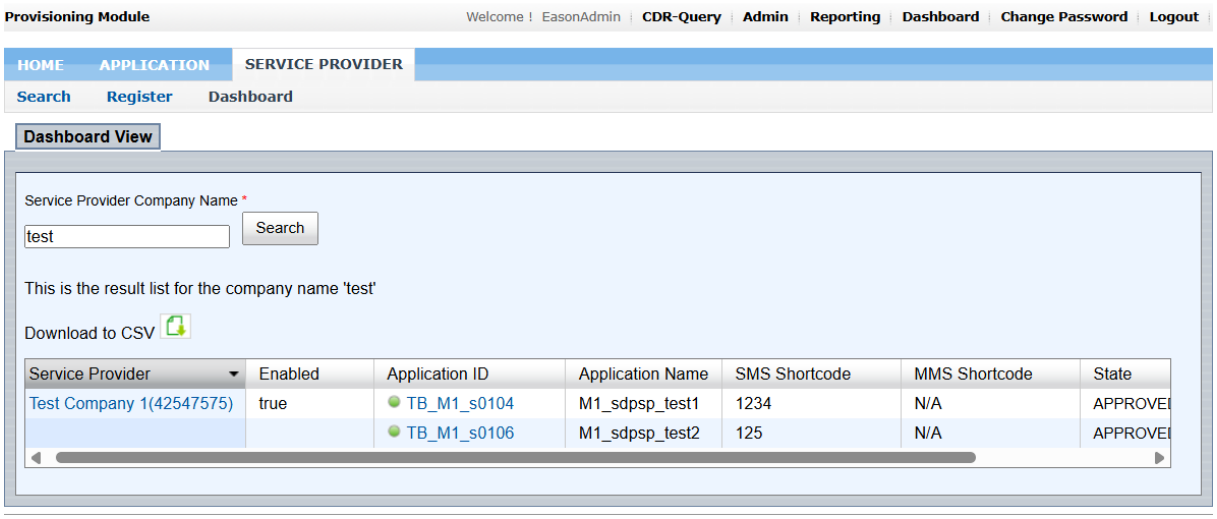


Figure 2-24: SP Dashboard

Service Provider	Description
Service Provider	Indicates the Service Provider name. Shall display in the following format: {Service Provider} {Service Provider Id}
Enabled	Indicates whether the service provider profile is enabled or disabled. Available values: - If the SP is enabled: true

	- If the SP is disabled: false
Application ID	Indicates the application id which is auto generated as mentioned in REQ-APP-CRE 3.
Application Name	Indicates the application name entered by the SP user during application creation.
SMS Shortcode	Indicates the shortcode for SMS assigned by the SP user during application creation.
MMS Shortcode	Indicates the shortcode for MMS assigned by the SP user during application creation.
State	Indicates the state of the application which is created under the selected SP.

REQ-SP-DSB 3: The user should be able to download the information as a CSV.

- serviceProviderId
- serviceproviderCompanyname
- serviceproviderAddress
- serviceproviderDescription
- serviceproviderUserlist
- serviceproviderMarketingUserlist
- serviceproviderWhitelistedUserList
- serviceproviderAllowedNcsList
- serviceproviderStatus
- applicationId
- applicationName
- applicationDescription
- applicationAllowedHostAddresses
- applicationConnectionType
- applicationWsPassword
- applicationAllowedNcsList
- isSmsMoAllowed
- smsShortcode
- smsKeywords
- smsMoConnectionUrl
- smsMoallowedParties
- smsMoChargingType
- smsMoFreeServicetype

- smsMoFreeServiceDescription
- smsMoFixedFlatRateServicetype
- smsMoFixedFlatRateServiceDescription
- smsMoFixedFlatRateFixedChargingValue
- smsMoFixedFlatRateIsTaxApplied
- smsMoKeywordChargePairKeyword
- smsMoKeywordChargePairServicetype
- smsMoKeywordChargePairServiceDescription
- smsMoKeywordChargePairChargingvalue
- smsMoKeywordChargePairIsTaxApplied
- smsMoMerchantId
- smsMoContentType
- smsMoUnitCost
- smsMoCreditLimit
- smsMoBalanceType
- isSmsMtAllowed
- smsMtBillingId
- smsMtDefaultSenderAddress
- smsMtConnectionUrlDeliveryReport
- smsMtChargeeField
- smsMtAllowedParties
- smsMtChargingType
- smsMtLocalFreeServicetype
- smsMtLocalFreeServiceDescription
- smsMtGlobalFreeServicetype
- smsMtGlobalFreeServiceDescription
- smsMtLocalFixedFlatRateServicetype
- smsMtLocalFixedFlatRateServiceDescription
- smsMtLocalFixedFlatRateFixedChargingValue
- smsMtLocalFixedFlatRateIsTaxApplied
- smsMtLocalFixedFlatRateContentType
- smsMtLocalFixedFlatRateUnitCost
- smsMtLocalFixedFlatRateCreditLimit
- smsMtGlobalFixedFlatRateServicetype
- smsMtGlobalFixedFlatRateServiceDescription
- smsMtGlobalFixedFlatRateFixedChargingValue
- smsMtGlobalFixedFlatRateIsTaxApplied
- smsMtGlobalFixedFlatRateContentType
- smsMtGlobalFixedFlatRateUnitCost
- smsMtGlobalFixedFlatRateCreditLimit
- smsMtLocalServicetypeValueListServicetype

- smsMtLocalServicetypeValueListServiceDescription
- smsMtLocalServicetypeValueListMinChargingValue
- smsMtLocalServicetypeValueListMaxChargingValue
- smsMtLocalServicetypeValueListIsTaxApplied
- smsMtLocalServicetypeValueListContentType
- smsMtLocalServicetypeValueListUnitCost
- smsMtLocalServicetypeValueListCreditLimit
- smsMtGlobalServicetypeValueListServicetype
- smsMtGlobalServicetypeValueListServiceDescription
- smsMtGlobalServicetypeValueListMinChargingValue
- smsMtGlobalServicetypeValueListMaxChargingValue
- smsMtGlobalServicetypeValueListIsTaxApplied
- smsMtGlobalServicetypeValueListContentType
- smsMtGlobalServicetypeValueListUnitCost
- smsMtGlobalServicetypeValueListCreditLimit
- smsMtMerchantId
- smsMtBalanceType
- smsAlias
- isMmsMoAllowed
- mmsShortcode
- mmsKeywords
- mmsMoAllowedMimeTypes
- mmsMoConnectionUrl
- mmsMoAllowedParties
- mmsMoChargingType
- mmsMoFreeServicetype
- mmsMoFreeServiceDescription
- mmsMoFixedFlatRateServicetype
- mmsMoFixedFlatRateServiceDescription
- mmsMoFixedFlatRateFixedChargingValue
- mmsMoFixedFlatRateIsTaxApplied
- mmsMoKeywordChargePairKeyword
- mmsMoKeywordChargePairServicetype
- mmsMoKeywordChargePairServiceDescription
- mmsMoKeywordChargePairChargingvalue
- mmsMoKeywordChargePairIsTaxApplied
- mmsMoMerchantId
- mmsMoContentType
- mmsMoUnitCost
- mmsMoCreditLimit
- mmsMoBalanceType

- isMmsMtAllowed
- mmsMtBillingId
- mmsMtDefaultSenderAddress
- mmsMtConnectionUrlDeliveryReport
- mmsMtChargeeField
- mmsMtAllowedParties
- mmsMtAllowedMimeTypes
- mmsMtChargingType
- mmsMtLocalFreeServicetype
- mmsMtLocalFreeServiceDescription
- mmsMtGlobalFreeServicetype
- mmsMtGlobalFreeServiceDescription
- mmsMtLocalFixedFlatRateServicetype
- mmsMtLocalFixedFlatRateServiceDescription
- mmsMtLocalFixedFlatRateFixedChargingValue
- mmsMtLocalFixedFlatRateIsTaxApplied
- mmsMtLocalFixedFlatRateCreditLimit
- mmsMtLocalFixedFlatRateContentType
- mmsMtLocalFixedFlatRateUnitCost
- mmsMtGlobalFixedFlatRateServicetype
- mmsMtGlobalFixedFlatRateServiceDescription
- mmsMtGlobalFixedFlatRateFixedChargingValue
- mmsMtGlobalFixedFlatRateIsTaxApplied
- mmsMtGlobalFixedFlatRateCreditLimit
- mmsMtGlobalFixedFlatRateContentType
- mmsMtGlobalFixedFlatRateUnitCost
- mmsMtLocalServicetypeValueListServicetype
- mmsMtLocalServicetypeValueListServiceDescription
- mmsMtLocalServicetypeValueListMinChargingValue
- mmsMtLocalServicetypeValueListMaxChargingValue
- mmsMtLocalServicetypeValueListIsTaxApplied
- mmsMtLocalServicetypeValueListCreditLimit
- mmsMtLocalServicetypeValueListContentType
- mmsMtLocalServicetypeValueListUnitCost
- mmsMtGlobalServicetypeValueListServicetype
- mmsMtGlobalServicetypeValueListServiceDescription
- mmsMtGlobalServicetypeValueListMinChargingValue
- mmsMtGlobalServicetypeValueListMaxChargingValue
- mmsMtGlobalServicetypeValueListIsTaxApplied
- mmsMtGlobalServicetypeValueListCreditLimit
- mmsMtGlobalServicetypeValueListContentType

- mmsMtGlobalServicetypeValueListUnitCost
- mmsMtMerchantId
- mmsMtBalanceType
- mmsAlias
- isUssdMoAllowed
- ussdMoServiceCode
- ussdMoGatewaySystemId
- ussdMoGatewayPassword
- ussdMoConnectionUrl
- ussdMoAllowedParties
- ussdMoChargingType
- ussdMoVlrWhitelistedUsers
- ussdMoVlrBlacklistedUsers
- ussdMoFreeServicetype
- ussdMoFreeServiceDescription
- ussdMoFixedFlatRateServicetype
- ussdMoFixedFlatRateServiceDescription
- ussdMoFixedFlatRateFixedChargingValue
- ussdMoFixedFlatRateIsTaxApplied
- ussdMoMerchantId
- ussdMoContentType
- ussdMoUnitCost
- ussdMoCreditLimit
- ussdMoBalanceType
- isUssdMtAllowed
- ussdMtServiceCode
- ussdMtGatewaySystemId
- ussdMtGatewayPassword
- ussdMtAllowedParties
- ussdMtChargingType
- ussdMtFreeServicetype
- ussdMtFreeServiceDescription
- ussdMtFixedFlatRateServicetype
- ussdMtFixedFlatRateServiceDescription
- ussdMtFixedFlatRateFixedChargingValue
- ussdMtFixedFlatRateIsTaxApplied
- ussdMtServicetypeValueListServicetype
- ussdMtServicetypeValueListServiceDescription
- ussdMtServicetypeValueListMinChargingValue
- ussdMtServicetypeValueListMaxChargingValue
- ussdMtServicetypeValueListIsTaxApplied

- ussdMtMerchantId
- ussdMtContentType
- ussdMtUnitCost
- ussdMtCreditLimit
- ussdMtBalanceType
- wapBillingId
- wapDefaultSenderAddress
- wapChargeeField
- wapConnectionUrlDeliveryReport
- wapAllowedParties
- wapChargingType
- wapLocalFreeServicetype
- wapLocalFreeServiceDescription
- wapGlobalFreeServicetype
- wapGlobalFreeServiceDescription
- wapLocalFixedFlatRateServicetype
- wapLocalFixedFlatRateServiceDescription
- wapLocalFixedFlatRateFixedChargingValue
- wapLocalFixedFlatRateIsTaxApplied
- wapLocalFixedFlatRateCreditLimit
- wapLocalFixedFlatRateContentType
- wapLocalFixedFlatRateUnitCost
- wapGlobalFixedFlatRateServicetype
- wapGlobalFixedFlatRateServiceDescription
- wapGlobalFixedFlatRateFixedChargingValue
- wapGlobalFixedFlatRateIsTaxApplied
- wapGlobalFixedFlatRateCreditLimit
- wapGlobalFixedFlatRateContentType
- wapGlobalFixedFlatRateUnitCost
- wapLocalServicetypeValueListServicetype
- wapLocalServicetypeValueListServiceDescription
- wapLocalServicetypeValueListMinChargingValue
- wapLocalServicetypeValueListMaxChargingValue
- wapLocalServicetypeValueListIsTaxApplied
- wapLocalServicetypeValueListCreditLimit
- wapLocalServicetypeValueListContentType
- wapLocalServicetypeValueListUnitCost
- wapGlobalServicetypeValueListServicetype
- wapGlobalServicetypeValueListServiceDescription
- wapGlobalServicetypeValueListMinChargingValue
- wapGlobalServicetypeValueListMaxChargingValue

- wapGlobalServicetypeValueListIsTaxApplied
- wapGlobalServicetypeValueListCreditLimit
- wapGlobalServicetypeValueListContentType
- wapGlobalServicetypeValueListUnitCost
- wapMerchantId
- wapBalanceType
- basAllowedParties
- basAllowedServices
- basServicetype
- basServiceDdescription
- basMinChargingValue
- basMaxChargingValue
- basTaxApplied
- basMerchantId
- basContentType
- basUnitCost
- basCreditLimit
- basBalanceType

REQ-SP-DSB 4: Service Providers shall be displayed as clickable links, and users shall be able to view the related SP information upon clicking on them.

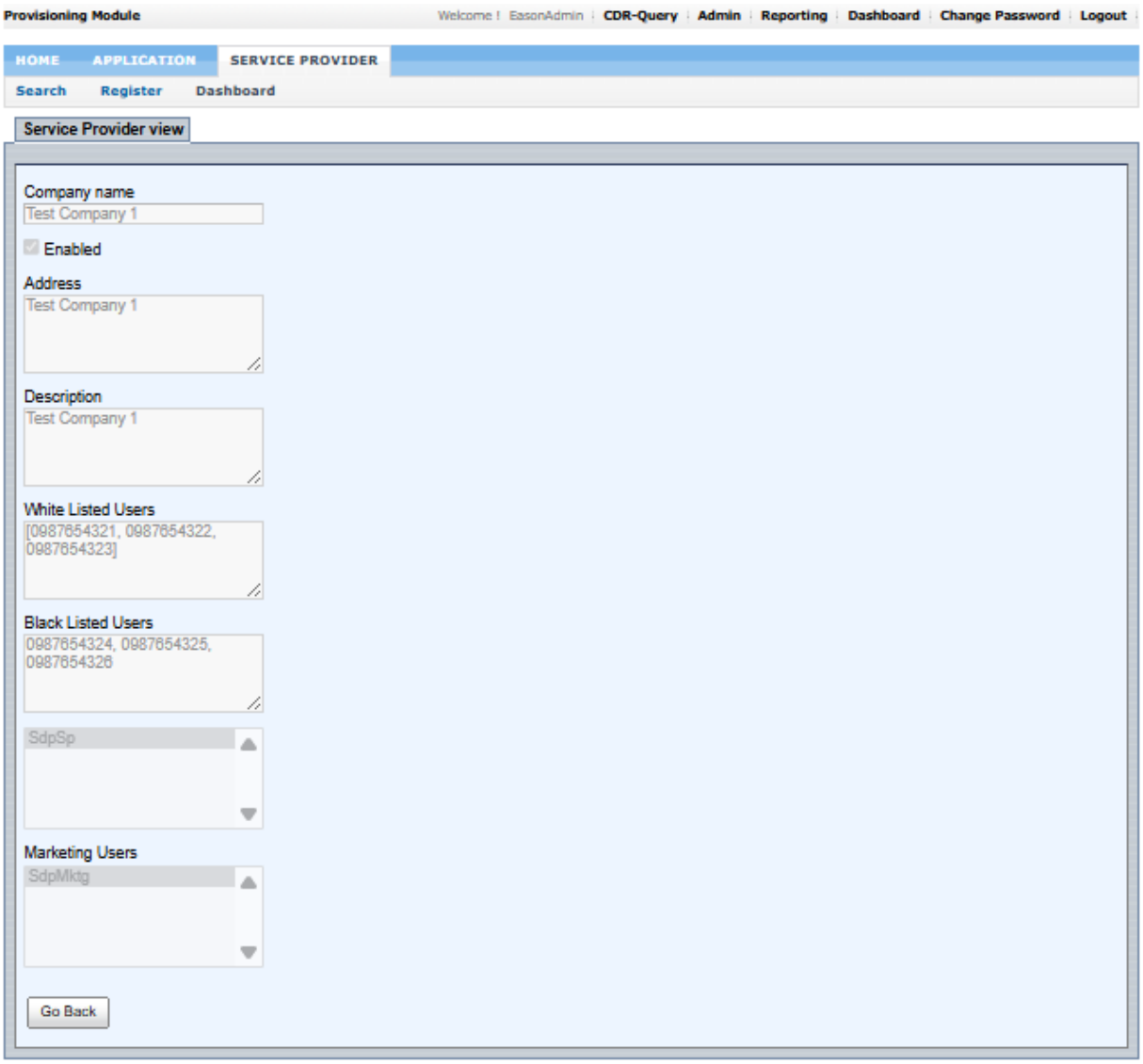


Figure 2-25: SP View

REQ-SP-DSB 4.1: The user should be redirected to the previous screen upon clicking on “Go Back” button (Refer Figure 2-24).

REQ-SP-DSB 5: Applications under each Service Provider shall be displayed as clickable links, and users shall be able to view the related application information upon clicking on them.

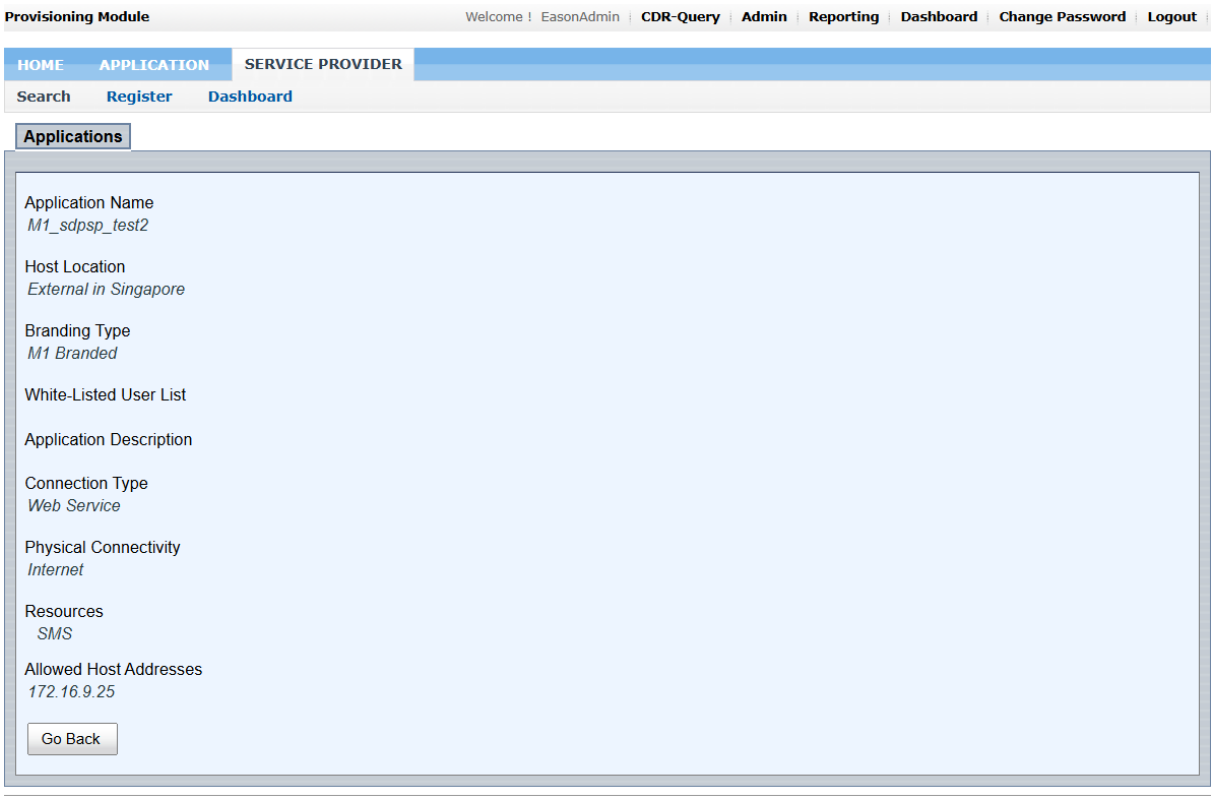


Figure 2-26: Application View

REQ-SP-DSB 5.1: The user should be redirected to the previous screen upon clicking on “Go Back” button (Refer Figure 3-25).

2.1.4 Disable a Service Provider

REQ-DIS-ESP 1: Upon clicking on the “Disable” in the Change Status column (Figure 3-20), the system shall provide the ability to disable the SP profile status as follows.

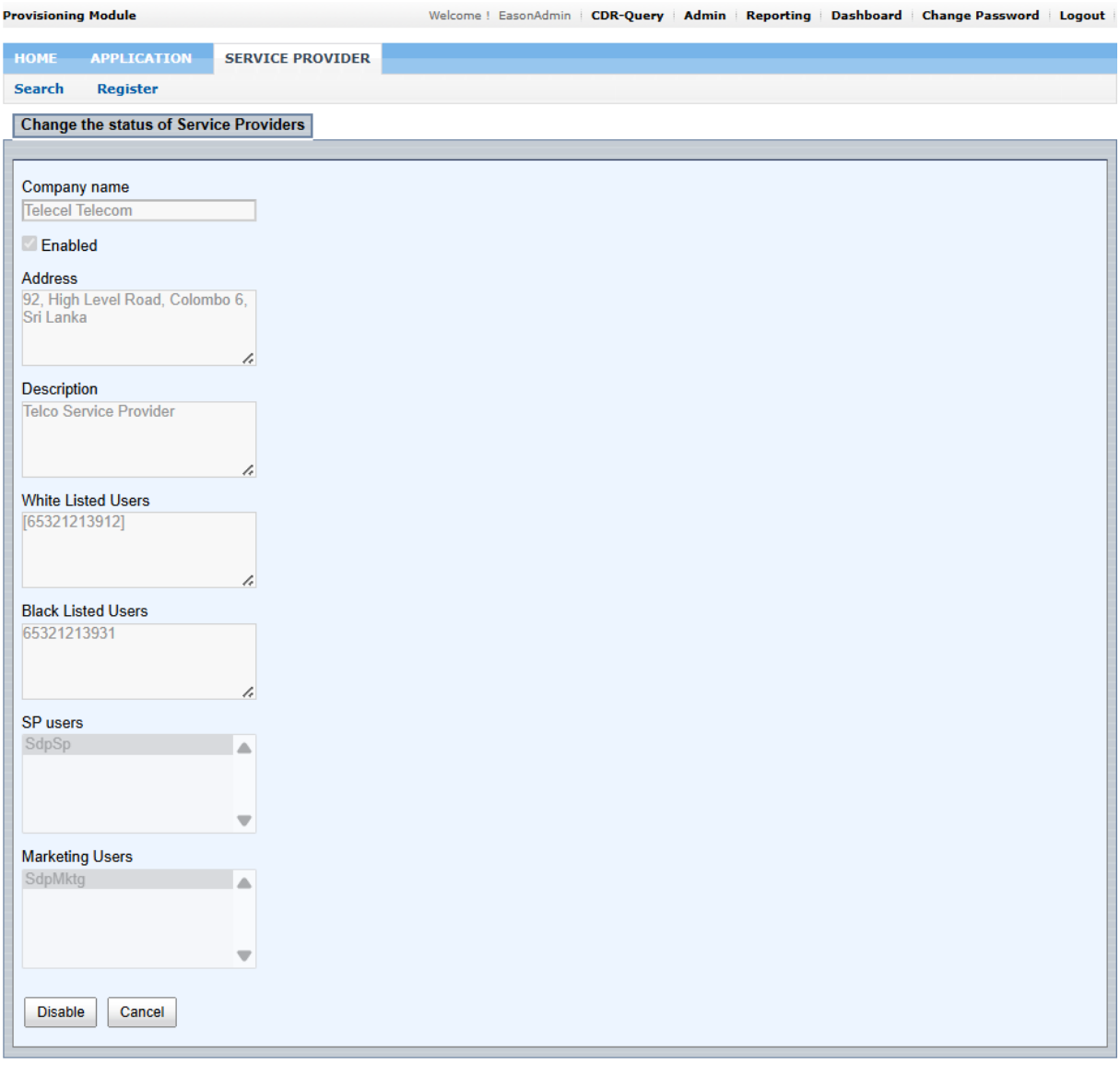


Figure 2-27: Disable SP Profile

REQ-DIS-ESP 2: After disabling the SP profile successfully, the following success message shall be displayed and the Change Status column shall be updated to “Enable” for the respective disabled SP profile.

Figure 2-28: Disabled SP Profile Record

REQ-DIS-ESP 3: Change of the Service Provider's status will be notified by an email sent from SP-Admin to SP-User and other configured users. Status can be either 'Active' or 'Blocked'.

Subject	From	To	Cc	Content Template
[M1-SDP] Service Provider <service-provider> status changed from <previous-status> to <new-status>	SDP-Admin@m1.com.sg	SP-User	Marketing-User	ServiceProvider with the following details state is changed. ServiceProvider CompanyName : [serviceprovider_companyname] Previous Status : [previous-status] New Status : [new-status] Remarks : [remarks]

2.1.5 Enable a Service Provider

REQ-ENA-ESP 1: User shall be able to Enable the SP profile again upon clicking on “Enable” in the Change Status column for the respective disabled SP profile.

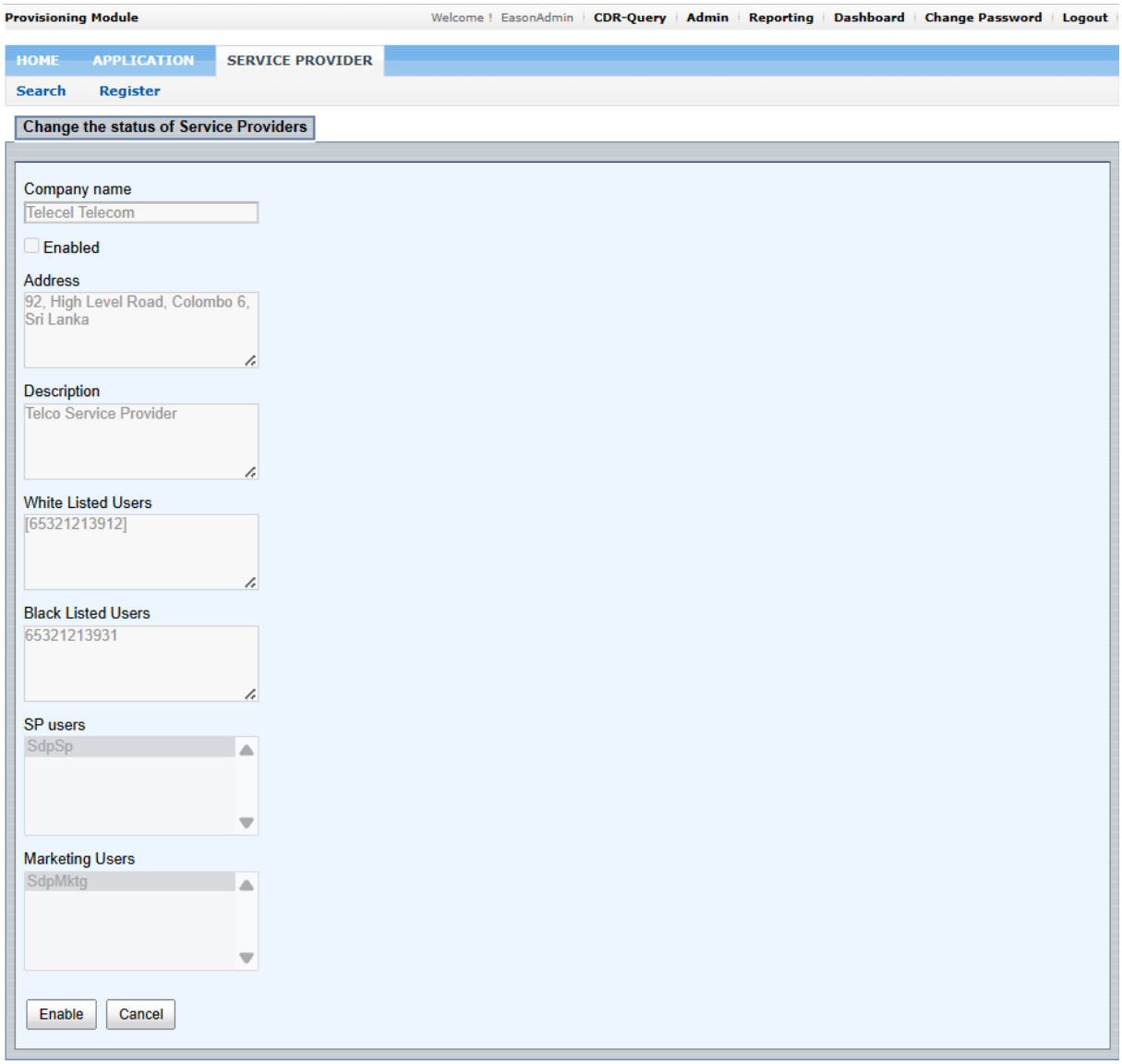


Figure 2-29: Enable SP Profile

REQ-ENA-ESP 2: After enabling the SP profile successfully, the following success message shall be displayed and the Change Status column shall be updated to “Disable” for the respective enabled SP profile.

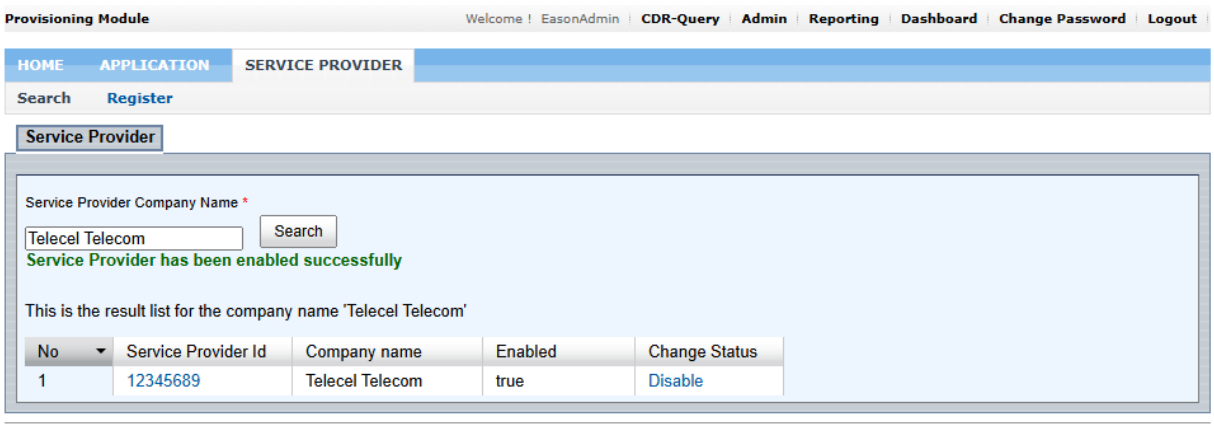


Figure 2-30: Disabled SP Profile Record

2.1.6 Service Provider Profile Update

REQ-SPP-PRO 1: When a SP-user logins to the Provisioning module, the home page shall be displayed as follows.

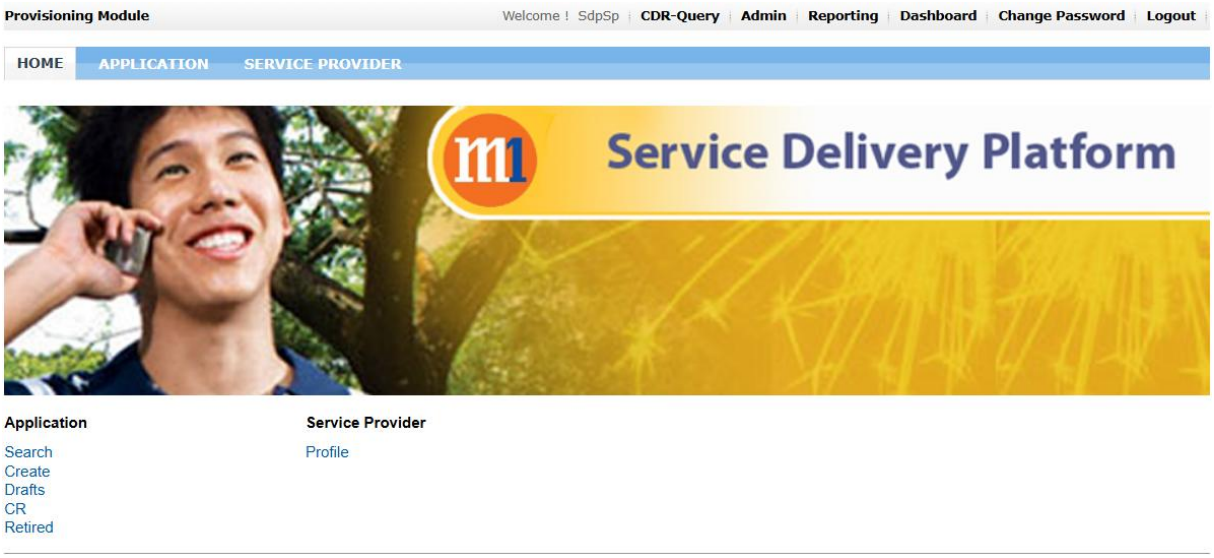
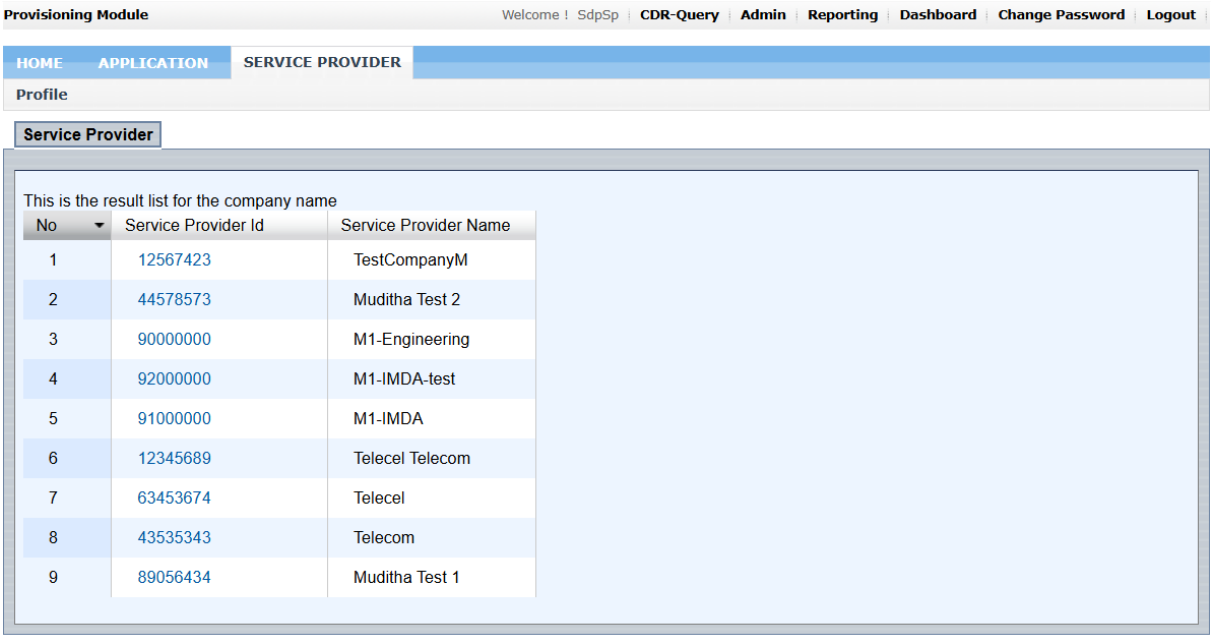


Figure 2-31: Provisioning Module Home Page for SP Users

REQ-SPP-PRO 2: Upon clicking the “Profile” link under Service Provider on the homepage, the SP user shall be able to view the list of SPs to which they have been assigned by the admin, during SP profile creation.



No	Service Provider Id	Service Provider Name
1	12567423	TestCompanyM
2	44578573	Muditha Test 2
3	90000000	M1-Engineering
4	92000000	M1-IMDA-test
5	91000000	M1-IMDA
6	12345689	Telecel Telecom
7	63453674	Telecel
8	43535343	Telecom
9	89056434	Muditha Test 1

Figure 2-32: SP Profile Information for SP User

REQ-SPP-PRO 3: SP user shall be able to edit the Address and the Description of the SP profile by clicking on the Service Provider Id as follows.

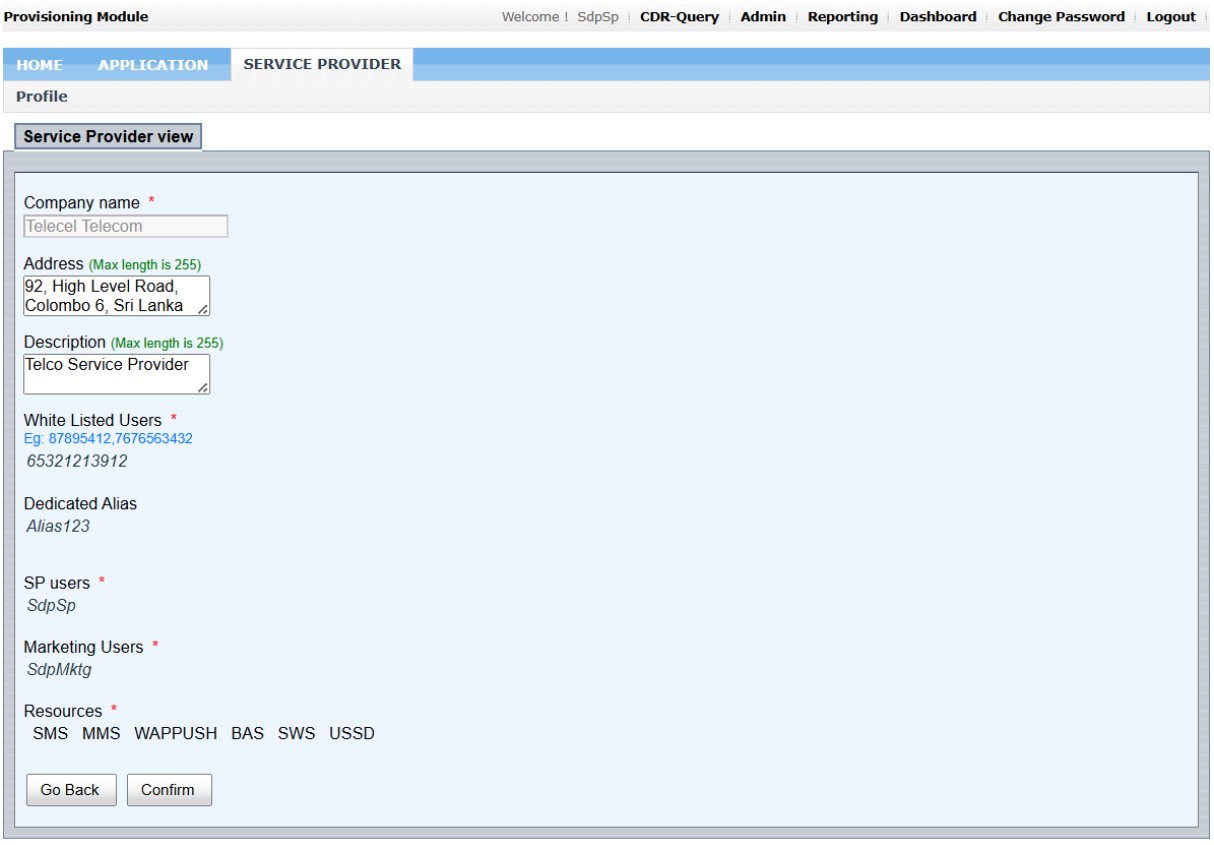


Figure 2-33: SP Profile View for SP User

REQ-SPP-PRO 4: Clicking on “Go back” button shall redirect the user back to the list of SP profiles assigned to the logged in SP user (Figure 3-28)

REQ-SPP-PRO 5: Regardless of making the necessary updates to Service Provider information, upon the user confirmation, a success message shall be displayed.

“Service Provider updated successfully.”

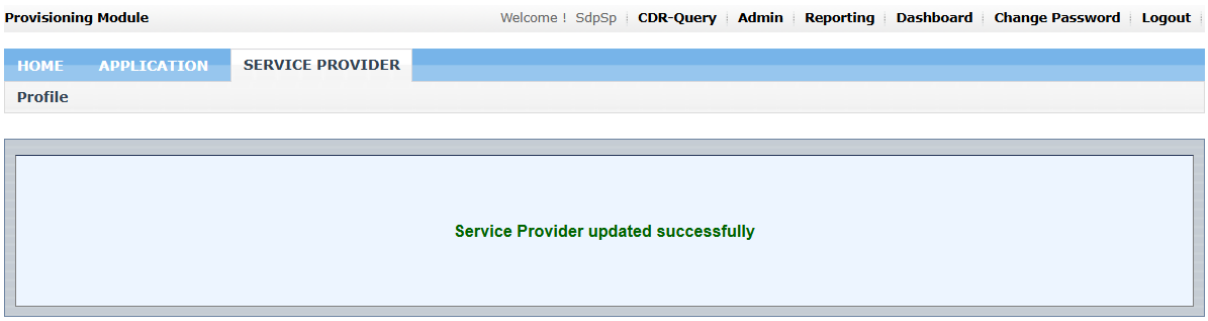


Figure 2-34: SP Profile Update Success for SP User

3 Appendix A – Profile Attributes

Reference: Profile_Attributes v0.5.xls

3.1 Service Provider Parameters

Parameter Name	Description
serviceprovider_id	To identify a ServiceProvider uniquely. This is required for the cdr creation.
serviceprovider_companyname	This is the unique company name for a ServiceProvider.
serviceprovider_address	This address of the ServiceProvider.
serviceprovider_description	A small description about the ServiceProvider.
serviceprovider_status	Status can have “Active” or “Blocked”. Admin can set the status to control a particular service provider.
serviceprovider_userlist	UI Service Provider type user's list of reference to be assigned for a ServiceProvider. Any of these users can login to the UI system on behalf of the ServiceProvider.
marketing_userlist	This is the list of marketing users, who can monitor this particular service provider and their applications.

3.2 Application Parameters

Parameter Name	Description
application_name	This is a unique value required for the cdr creation.
application_state	This provides the current state of the application, it can be either Initial-state/Testbed-state/Limited-Production/Production/Suspended/Retired
application_description	Description about the application.
is_manager_approved_production	Specify whether manager has approved the application for production.

creation_state_timestamp	Timestamp value for application reached the creation state.
Testbed_state_timestamp	Timestamp value for application reached the testbed state.
Limited_production_timestamp	Timestamp value for the limited production.
suspended_state_timestamp	Timestamp value for application reached the suspended state.
retired_state_timestamp	Timestamp value for application reached the retired state.
production_timestamp	Timestamp value for the production.
parent_service_provider_id	This is the reference to the Parent ServiceProvider's id.
Testbed_sla	This is the reference to the TestBed type SLA Object.
production_sla	This is the reference to the Production type SLA Object.
application_host_location	This is where the Application is hosted. (Used for Email-notification) Possible values can be * In M1 * External in Singapore * External in Overseas
branding_type	This is the Branding Type of the Application. (Used for Email-notification) * M1 Branded * Corporate Customer
physical_connectivity	This attribute specifies how the Application is going to connect to our system * Leased Line * VPN * Internet (Used for Email-notification)

3.3 GUI User Parameters

Parameter Name	Description
username	This unique username is required log into the GUI system.
password	This password is required log into the GUI system.
contact_number	Contact number of the user.

email_address	Email address of the user.
usergroup_id	User Group's id which the user belongs to.
user_state	User can be in Active or Blocked state.

3.4 Dedicated Alias Regex Pattern Guide

Summary of regular-expression constructs

Construct	Matches
Character classes	
`[abc]`	`a`, `b`, or `c` (simple class)
`[^abc]`	Any character except `a`, `b`, or `c` (negation)
`[a-zA-Z]`	`a` through `z` or `A` through `Z`, inclusive (range)
`[a-d[m-p]]`	`a` through `d`, or `m` through `p`: `[a-dm-p]` (union)
`[a-z&&[def]]`	`d`, `e`, or `f` (intersection)
`[a-z&&[^bc]]`	`a` through `z`, except for `b` and `c`: `[ad-z]` (subtraction)
`[a-z&&[^m-p]]`	`a` through `z`, and not `m` through `p`: `[a-lq-z]`(subtraction)
Predefined character classes	
`.`	Any character (may or may not match line terminators)
`\d`	A digit: `[0-9]`
`\D`	A non-digit: `[^0-9]`
`\s`	A whitespace character: `[ \t\n\x0B\f\r]`
`\S`	A non-whitespace character: `[^\s]`
`\w`	A word character: `[a-zA-Z_0-9]`
`\W`	A non-word character: `[^\w]`
Characters	

x	The character *x*
\\	The backslash character
\0*n*	The character with octal value 0*n* (0 <= *n* <= 7)
\0*nn*	The character with octal value 0*nn* (0 <= *n* <= 7)
\0*mnn*	The character with octal value 0*mnn* (0 <= *m* <= 3, 0 <= *n* <= 7)
\x*hh*	The character with hexadecimal value 0x*hh*
\u*hhhh*	The character with hexadecimal value 0x*hhhh*
\x*{h...h}*	The character with hexadecimal value 0x*h...h* (Character.MIN_CODE_POINT <= 0x*h...h* <= Character.MAX_CODE_POINT)
\t	The tab character ('\u0009')
\n	The newline (line feed) character ('\u000A')
\r	The carriage-return character ('\u000D')
\f	The form-feed character ('\u000C')
\a	The alert (bell) character ('\u0007')
\e	The escape character ('\u001B')
\c*x*	The control character corresponding to *x*
POSIX character classes (US-ASCII only)	
\p{Lower}	A lower-case alphabetic character: [a-z]
\p{Upper}	An upper-case alphabetic character:[A-Z]
\p{ASCII}	All ASCII:[\x00-\x7F]
\p{Alpha}	An alphabetic character:[\p{Lower}\p{Upper}]
\p{Digit}	A decimal digit: [0-9]
\p{Alnum}	An alphanumeric character:[\p{Alpha}\p{Digit}]
\p{Punct}	Punctuation: One of !"#$%&'()*+,-./:;<=>?@[\]^_`{|}~

\p{Graph}	A visible character: [\p{Alnum}\p{Punct}]
\p{Print}	A printable character: [\p{Graph}\x20]
\p{Blank}	A space or a tab: [\t]
\p{Cntrl}	A control character: [\x00-\x1F\x7F]
\p{XDigit}	A hexadecimal digit: [0-9a-fA-F]
\p{Space}	A whitespace character: [\t\n\x0B\f\r]
java.lang.Character classes (simple java character type)	
\p{javaLowerCase}	Equivalent to java.lang.Character.isLowerCase()
\p{javaUpperCase}	Equivalent to java.lang.Character.isUpperCase()
\p{javaWhitespace}	Equivalent to java.lang.Character.isWhitespace()
\p{javaMirrored}	Equivalent to java.lang.Character.isMirrored()
Classes for Unicode scripts, blocks, categories and binary properties	
\p{IsLatin}	A Latin script character (script)
\p{InGreek}	A character in the Greek block (block)
\p{Lu}	An uppercase letter (category)
\p{IsAlphabetic}	An alphabetic character (binary property)
\p{Sc}	A currency symbol
\P{InGreek}	Any character except one in the Greek block (negation)
[\p{L}&&[^\p{Lu}]]	Any letter except an uppercase letter (subtraction)
Boundary matchers	
^	The beginning of a line

`$`	The end of a line
`\b`	A word boundary
`\B`	A non-word boundary
`\A`	The beginning of the input
`\G`	The end of the previous match
`\Z`	The end of the input but for the final terminator, if any
`\z`	The end of the input
Greedy quantifiers	
X`?`	*X*, once or not at all
X`*`	*X*, zero or more times
X`+`	*X*, one or more times
X`{`*n*`}`	*X*, exactly *n* times
X`{`*n*`,}`	*X*, at least *n* times
X`{`*n*`,`*m*`}`	*X*, at least *n* but not more than *m* times
Reluctant quantifiers	
X`??`	*X*, once or not at all
X`*?`	*X*, zero or more times
X`+?`	*X*, one or more times
X`{`*n*`}?`	*X*, exactly *n* times
X`{`*n*`,}?`	*X*, at least *n* times
X`{`*n*`,`*m*`}?`	*X*, at least *n* but not more than *m* times
Possessive quantifiers	
X`?+`	*X*, once or not at all
X`*+`	*X*, zero or more times

X++	*X*, one or more times
X{*n*}+	*X*, exactly *n* times
X{*n*,}+	*X*, at least *n* times
X{*n*,*m*}+	*X*, at least *n* but not more than *m* times
Logical operators	
XY	*X* followed by *Y*
X|*Y*	Either *X* or *Y*
(*X*)	X, as a capturing group
Back references	
n	Whatever the *n*th capturing group matched
\k<*name*>	Whatever the named-capturing group "name" matched
Quotation	
\	Nothing, but quotes the following character
\Q	Nothing, but quotes all characters until \E
\E	Nothing, but ends quoting started by \Q
Special constructs (named-capturing and non-capturing)	
(?<name>*X*)	*X*, as a named-capturing group
(?:*X*)	*X*, as a non-capturing group
(?idmsuxU-idmsuxU)	Nothing, but turns match flags i d m s u x U on - off
(?idmsux-idmsux:*X*)	*X*, as a non-capturing group with the given flags i d m s u x on - off
(?=*X*)	*X*, via zero-width positive lookahead
(?!*X*)	*X*, via zero-width negative lookahead
(?<=*X*)	*X*, via zero-width positive lookbehind
(?<!*X*)	*X*, via zero-width negative lookbehind

(?>*X*)	*X*, as an independent, non-capturing group

Backslashes, escapes, and quoting

The backslash character ('\') serves to introduce escaped constructs, as defined in the table above, as well as to quote characters that otherwise would be interpreted as unescaped constructs. Thus the expression \\ matches a single backslash and \{ matches a left brace.

It is an error to use a backslash prior to any alphabetic character that does not denote an escaped construct; these are reserved for future extensions to the regular-expression language. A backslash may be used prior to a non-alphabetic character regardless of whether that character is part of an unescaped construct.

Backslashes within string literals in Java source code are interpreted as required by *The Java™ Language Specification* as either Unicode escapes (section 3.3) or other character escapes (section 3.10.6) It is therefore necessary to double backslashes in string literals that represent regular expressions to protect them from interpretation by the Java bytecode compiler. The string literal "\b", for example, matches a single backspace character when interpreted as a regular expression, while "\\b" matches a word boundary. The string literal "\(hello\)" is illegal and leads to a compile-time error; in order to match the string (hello) the string literal "\\(hello\\)" must be used.

Character Classes

Character classes may appear within other character classes, and may be composed by the union operator (implicit) and the intersection operator (&&). The union operator denotes a class that contains every character that is in at least one of its operand classes. The intersection operator denotes a class that contains every character that is in both of its operand classes.

The precedence of character-class operators is as follows, from highest to lowest:

1	Literal escape	`\x`
2	Grouping	`[...]`
3	Range	`a-z`
4	Union	`[a-e][i-u]`
5	Intersection	`[a-z&&[aeiou]]`

Note that a different set of metacharacters are in effect inside a character class than outside a character class. For instance, the regular expression. loses its special meaning inside a character class, while the expression - becomes a range forming metacharacter.

Line terminators

A *line terminator* is a one- or two-character sequence that marks the end of a line of the input character sequence. The following are recognized as line terminators:

- A newline (line feed) character ('\n'),
- A carriage-return character followed immediately by a newline character ("\r\n"),
- A standalone carriage-return character ('\r'),
- A next-line character ('\u0085'),
- A line-separator character ('\u2028'), or
- A paragraph-separator character ('\u2029).

If UNIX_LINES mode is activated, then the only line terminators recognized are newline characters.

The regular expression . matches any character except a line terminator unless the DOTALL flag is specified.

By default, the regular expressions ^ and $ ignore line terminators and only match at the beginning and the end, respectively, of the entire input sequence. If MULTILINE mode is activated then ^ matches at the beginning of input and after any line terminator except at the end of input. When in MULTILINE mode $ matches just before a line terminator or the end of the input sequence.

Groups and capturing

Group number

Capturing groups are numbered by counting their opening parentheses from left to right. In the expression ((A)(B(C))), for example, there are four such groups:

1	`((A)(B(C)))`
2	`(A)`
3	`(B(C))`
4	`(C)`

Group zero always stands for the entire expression.

Capturing groups are so named because, during a match, each subsequence of the input sequence that matches such a group is saved. The captured subsequence may be used later in the expression, via a back reference, and may also be retrieved from the matcher once the match operation is complete.

Group name

A capturing group can also be assigned a "name", a named-capturing group, and then be back-referenced later by the "name". Group names are composed of the following characters. The first character must be a letter.

- The uppercase letters 'A' through 'Z' ('\u0041' through '\u005a'),
- The lowercase letters 'a' through 'z' ('\u0061' through '\u007a'),
- The digits '0' through '9' ('\u0030' through '\u0039'),

A named-capturing group is still numbered as described in Group number.

The captured input associated with a group is always the subsequence that the group most recently matched. If a group is evaluated a second time because of quantification then its previously-captured value, if any, will be retained if the second evaluation fails. Matching the string "aba" against the expression (a(b)?)+, for example, leaves group two set to "b". All captured input is discarded at the beginning of each match.

Groups beginning with (? are either pure, *non-capturing* groups that do not capture text and do not count towards the group total, or *named-capturing* group.

Unicode support

This class is in conformance with Level 1 of *Unicode Technical Standard #18: Unicode Regular Expression*, plus RL2.1 Canonical Equivalents.

Unicode escape sequences such as \u2014 in Java source code are processed as described in section 3.3 of *The Java™ Language Specification*. Such escape sequences are also implemented directly by the regular-expression parser so that Unicode escapes can be used in expressions that are read from files or from the keyboard. Thus the strings "\u2014" and "\\u2014", while not equal, compile into the same pattern, which matches the character with hexadecimal value 0x2014.

A Unicode character can also be represented in a regular-expression by using its **Hex notation** (hexadecimal code point value) directly as described in construct \x{...}, for example a supplementary character U+2011F can be specified as \x{2011F}, instead of two consecutive Unicode escape sequences of the surrogate pair \uD840\uDD1F.

Unicode scripts, blocks, categories and binary properties are written with the \p and \P constructs as in Perl. \p{*prop*} matches if the input has the property *prop*, while \P{*prop*} does not match if the input has that property.

Scripts, blocks, categories and binary properties can be used both inside and outside of a character class.

Scripts are specified either with the prefix Is, as in IsHiragana, or by using the script keyword (or its short form sc)as in script=Hiragana or sc=Hiragana.

The script names supported by Pattern are the valid script names accepted and defined by UnicodeScript.forName.

Blocks are specified with the prefix In, as in InMongolian, or by using the keyword block (or its short form blk) as in block=Mongolian or blk=Mongolian.

The block names supported by Pattern are the valid block names accepted and defined by UnicodeBlock.forName.

Categories may be specified with the optional prefix Is: Both \p{L} and \p{IsL} denote the category of Unicode letters. Same as scripts and blocks, categories can also be specified by using the keyword general_category (or its short form gc) as in general_category=Lu or gc=Lu.

The supported categories are those of *The Unicode Standard* in the version specified by the Character class. The category names are those defined in the Standard, both normative and informative.

Binary properties are specified with the prefix Is, as in IsAlphabetic. The supported binary properties by Pattern are

- Alphabetic
- Ideographic
- Letter
- Lowercase
- Uppercase
- Titlecase
- Punctuation
- Control
- White_Space
- Digit
- Hex_Digit
- Noncharacter_Code_Point
- Assigned

Predefined Character classes and **POSIX character classes** are in conformance with the recommendation of *Annex C: Compatibility Properties* of *Unicode Regular Expression*, when UNICODE_CHARACTER_CLASS flag is specified.

Construct	Matches
`\p{Lower}`	A lowercase character:`\p{IsLowercase}`
`\p{Upper}`	An uppercase character:`\p{IsUppercase}`

\p{ASCII}	All ASCII: [\x00-\x7F]
\p{Alpha}	An alphabetic character: \p{IsAlphabetic}
\p{Digit}	A decimal digit character: p{IsDigit}
\p{Alnum}	An alphanumeric character: [\p{IsAlphabetic}\p{IsDigit}]
\p{Punct}	A punctuation character: p{IsPunctuation}
\p{Graph}	A visible character: [^\p{IsWhite_Space}\p{gc=Cc}\p{gc=Cs}\p{gc=Cn}]
\p{Print}	A printable character: [\p{Graph}\p{Blank}&&[^\p{Cntrl}]]
\p{Blank}	A space or a tab: [\p{IsWhite_Space}&&[^\p{gc=Zl}\p{gc=Zp}\x0a\x0b\x0c\x0d\x85]]
\p{Cntrl}	A control character: \p{gc=Cc}
\p{XDigit}	A hexadecimal digit: [\p{gc=Nd}\p{IsHex_Digit}]
\p{Space}	A whitespace character: \p{IsWhite_Space}
\d	A digit: \p{IsDigit}
\D	A non-digit: [^\d]
\s	A whitespace character: \p{IsWhite_Space}
\S	A non-whitespace character: [^\s]
\w	A word character: [\p{Alpha}\p{gc=Mn}\p{gc=Me}\p{gc=Mc}\p{Digit}\p{gc=Pc}]
\W	A non-word character: [^\w]

Categories that behave like the java.lang.Character boolean is*methodname* methods (except for the deprecated ones) are available through the same \p{*prop*} syntax where the specified property has the name java*methodname*.

4 Appendix B – SLA SP Level Attributes

Reference: *SLA_Attributes v0.5.xls*

4.1 General SLA

Name	Description	User Type	Mandatory/ Optional
whitelisted_user_list	White Listed user list.	OPERATIONS_LEVEL	Mandatory
blacklisted_user_list	Black Listed user list.	OPERATIONS_LEVEL	Optional
allowed_ncs_list	Here possible values can be SMS/ MMS/ Billing/ WAP push/ USSD or a combination of them.	OPERATIONS_LEVEL	Mandatory

4.2 SMS

Name	Description	Validation	User Type	Mandatory/ Optional
SMS MO **Note:** Even though fields coming under MO are mentioned as Mandatory, these fields are mandatory if parameter "is_sms_mo_allowed" is set to true.				
sms_mo_max_msg_day	No. of Maximum MO msgs per day. This is an optional value and if not supplied, msg/day enforcement will not be enforced.	Should be a number	OPERATIONS_LEVEL	Optional
sms_mo_max_msg_second	No. of Maximum MO msgs per second.	Should be a number	OPERATIONS_LEVEL	Mandatory
SMS MT **Note:** Even though fields coming under MT are mentioned as Mandatory, these fields are mandatory if parameter "is_sms_mt_allowed" is set to true.				
sms_mt_max_recipients_per_day	No. of Maximum MT recipients per day. This is an optional value and if not supplied, msg/day enforcement will not be enforced.	Should be a number	OPERATIONS_LEVEL	Optional
sms_mt_max_recipients_per_second	No. of Maximum MT recipients per second.	Should be a number	OPERATIONS_LEVEL	Mandatory

4.3 MMS

Name	Description	Validation	User Type	Mandatory/ Optional
mms_mo_max_msg_day	No. of Maximum MO msgs per day, this is an optional value if this is not supplied then msg/day enforcement will not be enforced	Should be a number	OPERATIONS_LEVEL	Optional
mms_mo_max_msg_second	No. of Maximum MO msgs per second	Should be a number	OPERATIONS_LEVEL	Mandatory
mms_mt_max_recipients_day	No. of Maximum MT recipients per day, this is an optional value if this is not supplied then msg/day enforcement will not be enforced	Should be a number	OPERATIONS_LEVEL	Optional
mms_mt_max_recipients_second	No. of Maximum MT recipients per second	Should be a number	OPERATIONS_LEVEL	Mandatory

4.4 BAS

Name	Description		Validation	User Type	Mandatory/ Optional
bas_max_billing_day	No. of Maximum BAS incoming requests per day, this is an optional value if this is not supplied then msg/day enforcement will not be enforced		Should be a number	OPERATIONS_LEVEL	Optional
bas_max_billing_second	No. of Maximum Billing msgs per second		Should be a number	OPERATIONS_LEVEL	Mandatory

4.5 WAPPUSH

Name	Description	Validation	User Type	Mandatory/ Optional
wap_push_max_recipients_day	No. of Maximum WAP push recipients per day, this is an optional value if this is not supplied then msg/day enforcement will not be enforced	Should be a number	OPERATIONS_LEVEL	Optional
wap_push_max_receipients_second	No. of Maximum WAP push recipients per second	Should be a number	OPERATIONS_LEVEL	Mandatory

4.6 USSD

Name	Description	Validation	User Type	Mandatory/ Optional
ussd_mo_max_msg_day	No. of Maximum MO msgs per day, this is an optional value if this is not supplied then msg/day enforcement will not be enforced	Should be a number	OPERATIONS_LEVEL	Optional
ussd_mo_max_msg_second	No. of Maximum MO msgs per second	Should be a number	OPERATIONS_LEVEL	Mandatory
ussd_mt_max_recipients_per_day	No. of Maximum MT recipients per day. This is an optional value if this is not supplied then msg/day enforcement will not be enforced.	Should be a number	OPERATIONS_LEVEL	Optional
ussd_mt_max_recipients_per_second	No. of Maximum MT recipients per second	Should be a number	OPERATIONS_LEVEL	Mandatory

5 Appendix C – User Roles and Permissions

Name	Description
ROLE_LOGIN_PROV	Log in to the provisioning module.
ROLE_CREATE_SP	Create service provider accounts.
ROLE_VIEW_SP	View created service provider accounts list.
ROLE_CREATE_APP	Create provisioning applications.
ROLE_LIST_DRAFTS	View Applications which are saved in the system as drafts by the service provider users.
ROLE_EDIT_SP	Edit service provider accounts.
ROLE_SEARCH_SP	Search service provider accounts.
ROLE_SEARCH_APP	Search created applications.
ROLE_SP	To identify user is a SP user.
ROLE_MARKERTING	To identify user is a marketing user.
ROLE_PRODUCTION_OPERATION	To identify user is a production operation user.
ROLE_TB_OPERATION	To identify user is a testbed operation user.
ROLE_SDP_ADMIN	To identify user is a SDP admin and more.
PROV_SUSPENDED_TESTBED	Suspend applications in the testbed state.
PROV_SUSPENDED_PRODUCTION	Suspend applications in the production state.
PROV_REACTIVATE_TESTBED	Reactivate suspended applications in the test bed state.
PROV_REACTIVATE_PRODUCTION	Reactivate suspended applications in the production state.
PROV_RETIRE_TESTBED	Retire suspended applications in the test bed state.
PROV_RETIRE_PRODUCTION	Retire suspended applications in the production state.
VIEW_ALL_APP_NCS_DETAIL	To view entire NCS SLA configurations in any state.
VIEW_LIMITED_PRODUCTION_TIME	To view limited production time of the applications.

VIEW_PRE_ACTIVE_TESTBED_ENG_APPROVAL_STATUS	To view the approval status of a NCS by xMsc, Network, Prepaid, Postpaid engineers at pre active tb state.
VIEW_PRE_PROV_PRODUCTION_ENG_APPROVAL_STATUS	To view the approval status of a NCS by xMsc, Network, Prepaid, Postpaid engineers at pre provisioned production state.
PROV_REQUEST_CR_APPLICATION	This is to request a CR application request for an existing application which is in production given to SP.
ROLE_CHANGE_PRODUCTION_SLA	To change some values (Ex: Bill description, service type description, but not short code, keywords) by the Production Operation User when the application is in the Active Production.
PROV_PRE_APPROVED_PRODUCTION_STATE	This is the role given to SDP Manager To approve the applications in PRE_APPROVED_PRODUCTION_STATE.
PROV_PRE_ACTIVE_TESTBED_STATE_POSTPAID_CONFIG	This is given to the Post-paid engineer in PRE_ACTIVE_TESTBED_STATE.
PROV_PRE_PROV_PRODUCTION_STATE_POSTPAID_CONFIG	This is given to the Post-paid engineer in PRE_PROV_PRODUCTION_STATE.
ROLE_CHANGE_TESTBED_SLA	To change some values (Ex: Bill description, service type description, but not short code, keywords) by the TB User when the application is in the Active Testbed state.
ROLE_SEARCH_USER	Privilege to search for users.
ROLE_SEARCH_MODULE	Privilege to search for modules.
ROLE_SEARCH_GROUP	Privilege to search for groups.
ROLE_SEARCH_PERMISSION	Privilege to search permissions.
ROLE_ADD_USER	Privilege to add users.
ROLE_ADD_MODULE	Privilege to add modules.
ROLE_ADD_GROUP	Privilege to add group.
ROLE_ADD_PERMISSION	Privilege to add permission.
ROLE_MODIFY_USER	Privilege to modify users.
ROLE_MODIFY_MODULE	Privilege to modify modules.
ROLE_MODIFY_GROUP	Privilege to modify groups.

ROLE_MODIFY_PERMISSION	Privilege to modify permission.
ROLE_REMOVE_USER	Privilege to remove users.
ROLE_REMOVE_MODULE	Privilege to remove modules.
ROLE_REMOVE_GROUP	Privilege to remove groups.
ROLE_REMOVE_PERMISSION	Privilege to remove permissions.
ROLE_DEFAULT_MODULE	Privilege to change default module.
ROLE_ASSIGN_MODULE	Privilege to assign default module.
ROLE_SECURITY_USER	Privilege to modify security details of user.
ROLE_CHANGE_PASSWORD	Privilege to change password for logged user.
PROV_APPROVED_APPLICATION_STATE	To view applications in Approve Application Request state.
PROV_REQUESTED_APPLICATION_STATE	To view applications in Requested Application state.
PROV_ACTIVE_TESTBED_STATE	To view applications in Active Testbed state.
PROV_PRE_ACTIVE_TESTBED_STATE_COMMON	Common Privileges for the Pre Active Testbed state.
ROLE_SMSC_ENGINEER	Set of the Privileges for the SMS Center Engineer.
PROV_PRE_ACTIVE_TESTBED_STATE_SMSC_CONFIG	Configuration Privileges for the SMSC Engineer in the Pre-Active Testbed state.
ROLE_MMSC_ENGINEER	Set of the Privileges for the MMS Center Engineer.
PROV_PRE_ACTIVE_TESTBED_STATE_MMSC_CONFIG	Configuration Privileges for the SMSC Engineer in the Pre-Active Testbed state.
ROLE_PREPAID_IN_ENGINEER	To identify user is Pre-Paid IN Engineer user.
PROV_PRE_ACTIVE_TESTBED_STATE_PREPAID_CONFIG	Configuration Privileges for the IN Engineer in the Pre-Active Testbed state.
ROLE_POSTPAID_BILLING_ENGINEER	To identify user is Postpaid Billing Engineer user.
PROV_PRE_ACTIVE_TESTBED_STATE_POSTPAID_CONFIG	Configuration Privileges for the Postpaid Engineer in the Pre-Active Testbed state.

ROLE_CUSTOMERCARE	To identify user is Customer Care user.
ROLE_NETWORK_ADMIN	To identify user is Network Administrator user.
PROV_PRE_ACTIVE_TESTBED_STATE_NW_CONFIG	Configuration Privileges for the Network User in the Pre-Active Testbed state.
ROLE_SDP_MANAGER	To identify the user is a SDP Manager.
PROV_PRE_ACTIVE_PRODUCTION_STATE	To view and approve applications in Pre Active Production state.
PROV_PRE_PROV_PRODUCTION_STATE_COMMON	Common Privileges for the Pre-Production state.
PROV_APPROVED_PRODUCTION_STATE	To view and approve applications in Approved Production state.
PROV_LIMITED_PRODUCTION_STATE	To view and approve applications in Limited Production state.
PROV_PRE_PROV_PRODUCTION_STATE_NW_CONFIG	Configuration Privileges for the Network User in the Pre-Provisioned Production state.
PROV_ACTIVE_PRODUCTION_STATE	Privileges for Active Production state.
PROV_PRE_PROV_PRODUCTION_STATE_SMSC_CONFIG	Configuration Privileges for the SMSC Engineer in the Pre-Provisioned Production state.
PROV_PRE_PROV_PRODUCTION_STATE_MMSC_CONFIG	Configuration Privileges for the MMSC Engineer in the Pre-Provisioned Production state.
PROV_PRE_PROV_PRODUCTION_STATE_PREPAID_CONFIG	Configuration Privileges for the IN Engineer in the Pre-Provisioned Production state.
PROV_PRE_PROV_PRODUCTION_STATE_POSTPAID_CONFIG	Configuration Privileges for the Postpaid Engineer in the Pre-Provisioned Production state.
ROLE_LIST_RETIRED_APP	Privileges to search for retired applications.
ROLE_USSD_ENGINEER	To identify user is a USSD Engineer.
PROV_PRE_ACTIVE_TESTBED_STATE_USSD_CONFIG	Configuration Privileges for the USSD Engineer in the Pre-Active Testbed state.
PROV_PRE_PROV_PRODUCTION_STATE_USSD_CONFIG	Configuration Privileges for the USSD Engineer in the Pre-Provisioned Production state.
ROLE_VIEW_DASHBOARD	Privilege for the SDP Admin to see the dashboard view of the available SPs and Applications.

	Service Provider-User	Marketing-User	Test Bed-Operations-User	Production-Operations-User	SDP-Admin	SDP-Manager	SMSC-Engineer	MMSC-Engineer	IN-Engineer	Post Paid-Billing-Engineer	Customer Care-User	USSD-Engineer	Network-Admin-User
ROLE_LOGIN_PROV	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
ROLE_NETWORK_ADMIN	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES
ROLE_SEARCH_SP	NO	YES	NO	NO	YES	NO	YES	YES	YES	YES	NO	YES	YES
ROLE_SEARCH_APP	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
PROV_PRE_ACTIVE_TESTBED_STATE_NW_CONFIG	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES
PROV_PRE_PROV_PRODUCTION_STATE_NW_CONFIG	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES
ROLE_CREATE_APP	YES	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ROLE_VIEW_SP	YES	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ROLE_LIST_DRAFTS	YES	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ROLE_SP	YES	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
PROV_ACTIVE_TESTBED_STATE	YES	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
PROV_APPROVED_PRODUCTION_STATE	YES	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
PROV_LIMITED_PRODUCTION_STATE	YES	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
PROV_REQUEST_CR_APPLICATION	YES	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ROLE_MARKERTING	NO	YES	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
PROV_REQUESTED_APPLICATION_STATE	NO	YES	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ROLE_CREATE_SP	NO	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO	NO

ROLE_EDIT_SP	NO	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO	NO
ROLE_SDP_ADMIN	NO	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO	NO
PROV_PRE_APPROVED_PRODUCTION_STATE	NO	NO	NO	NO	YES	YES	NO	NO	NO	NO	NO	NO	NO
PROV_SUSPENDED_TESTBED	NO	NO	YES	NO	YES	NO	NO	NO	NO	NO	NO	NO	NO
PROV_SUSPENDED_PRODUCTION	NO	NO	NO	YES	YES	NO	NO	NO	NO	NO	NO	NO	NO
PROV_REACTIVATE_TESTBED	NO	NO	YES	NO	YES	NO	NO	NO	NO	NO	NO	NO	NO
PROV_REACTIVATE_PRODUCTION	NO	NO	NO	YES	YES	NO	NO	NO	NO	NO	NO	NO	NO
PROV_RETIRE_TESTBED	NO	NO	YES	NO	YES	NO	NO	NO	NO	NO	NO	NO	NO
PROV_RETIRE_PRODUCTION	NO	NO	NO	YES	YES	NO	NO	NO	NO	NO	NO	NO	NO
ROLE_LIST_RETIRED_APP	NO	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO	NO
ROLE_VIEW_DASHBOARD	NO	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO	NO
ROLE_TB_OPERATION	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
PROV_APPROVED_APPLICATION_STATE	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
PROV_PRE_ACTIVE_TESTBED_STATE_COMMON	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
VIEW_PRE_ACTIVE_TESTBED_ENG_APPROVAL_STATUS	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ROLE_CHANGE_TESTBED_SLA	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
VIEW_ALL_APP_NCS_DETAIL	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO	YES	NO	NO
ROLE_PRODUCTION_OPERATION	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO	NO	NO

PROV_PRE_ACTIVE_PRODUCTION_STATE	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO	NO	NO
PROV_PRE_PROV_PRODUCTION_STATE_COMMON	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO	NO	NO
PROV_ACTIVE_PRODUCTION_STATE	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO	NO	NO
VIEW_PRE_PROV_PRODUCTION_ENG_APPROVAL_STATUS	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO	NO	NO
VIEW_LIMITED_PRODUCTION_TIME	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO	NO	NO
ROLE_CHANGE_PRODUCTION_SLA	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO	NO	NO
ROLE_SDP_MANAGER	NO	NO	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO
ROLE_SMSC_ENGINEER	NO	NO	NO	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO
PROV_PRE_ACTIVE_TESTBED_STATE_SMSC_CONFIG	NO	NO	NO	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO
PROV_PRE_PROV_PRODUCTION_STATE_SMSC_CONFIG	NO	NO	NO	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO
ROLE_MMSC_ENGINEER	NO	NO	NO	NO	NO	NO	NO	YES	NO	NO	NO	NO	NO
PROV_PRE_ACTIVE_TESTBED_STATE_MMSC_CONFIG	NO	NO	NO	NO	NO	NO	NO	YES	NO	NO	NO	NO	NO
PROV_PRE_PROV_PRODUCTION_STATE_MMSC_CONFIG	NO	NO	NO	NO	NO	NO	NO	YES	NO	NO	NO	NO	NO
ROLE_PREPAID_IN_ENGINEER	NO	NO	NO	NO	NO	NO	NO	NO	YES	NO	NO	NO	NO
PROV_PRE_ACTIVE_TESTBED_STATE_PREPAID_CONFIG	NO	NO	NO	NO	NO	NO	NO	NO	YES	NO	NO	NO	NO
PROV_PRE_PROV_PRODUCTION_STATE_PREPAID_CONFIG	NO	NO	NO	NO	NO	NO	NO	NO	YES	NO	NO	NO	NO

ROLE_POSTPAID_BILLING_ENGINEER	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	NO	NO	NO
PROV_PRE_ACTIVE_TESTBED_STATE_POSTPAID_CONFIG	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	NO	NO	NO
PROV_PRE_PROV_PRODUCTION_STATE_POSTPAID_CONFIG	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	NO	NO	NO
ROLE_CUSTOMER_CARE_USER	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	NO	NO
ROLE_USSD_ENGINEER	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	NO
PROV_PRE_ACTIVE_TESTBED_STATE_USSD_CONFIG	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	NO
PROV_PRE_PROV_PRODUCTION_STATE_USSD_CONFIG	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	NO

6 Appendix D – Short Code and Keywords

6.1 Short Code

REQ-SHT-CDE 1: Short codes shall be used to route a request to the correct application.

REQ-SHT-CDE 2: Two types of short codes can be defined:

- **Shared short code –** More than one application can have the same short code. In this case, the keyword will be used to route a request to the particular application.
- **Exclusive short code –** The short code is unique and is used by only one application in the SDP.

REQ-SHT-CDE 3: A short code can be defined per NCS.

REQ-SHT-CDE 4: The short code should be a regular expression. (Please Refer Section 3.4 Dedicated Alias Regex Pattern Guide in Appendix A - Profile Attributes for further information)

Eg: 888 ***

776****

REQ-SHT-CDE 5: When requesting a new short code, the short code must not be accepted by SDP if

- The new short code is a subset of the previously defined set of short codes or
- A previously defined short code is a subset of the new one.

REQ-SHT-CDE 6: The short code assigned to an application shall be used in both production and testbed environments.

REQ-SHT-CDE 7: The system should not allow to have the same keyword assigned to multiple applications under the same short code.

Ex:

✅ Allowed:

JOIN on 12345 → App A

JOIN on 67890 → App B

✅ (different short code with the same keyword)

❌ Not Allowed:

JOIN on 12345 → App A

JOIN on 12345 → App B

❌ (same short code and the same keyword)

6.2 Keywords

REQ-KEY-WRD 1: SDP shall allow configuration of a maximum of 50 keywords per short code.

REQ-KEY-WRD 2: Duplicate keywords shall not be allowed for the same short code.

REQ-KEY-WRD 3: For shared short codes, the routing of an incoming request to the correct application shall be based on the [short code + keyword] pair.

REQ-KEY-WRD 4: For each keyword, it shall be possible to specify the charging amount.