

M2M Remote SIM Provisioning Report

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1. Process Overview

The M2M Remote SIM Provisioning (RSP) process allows for the remote provisioning and management of embedded SIMs (eUICC) in M2M devices. The implementation follows the GSMA SGP.02 specification and consists of the following key steps:

1. Root CA initialization - Certificate authority setup for secure communication
2. SM-DP and SM-SR setup - Subscription Manager entities initialization
3. eUICC registration - Device registers with SM-SR using PSK-TLS
4. ISD-P creation - Creation of security domain for profile installation
5. Key establishment - Secure ECDH key exchange for end-to-end encryption
6. Profile preparation - SM-DP prepares the profile data package
7. Profile installation - SM-SR delivers and installs profile on eUICC
8. Profile enabling - Newly installed profile is enabled on the eUICC

2. Performance Measurements

The following table shows the accurate time taken for each step of the process from detailed measurements:

Process Step	Time (seconds)	Bottleneck
eUICC Registration Process	0.114	No
ISD-P Creation Process	0.055	No
ECDH Key Establishment Process	0.483	No
Profile Preparation Process	10.319	Yes
Profile Download and Installation Process	5.284	Yes
Profile Enabling Process	10.742	Yes
Status Check Process	2.160	No
ECDH Key Generation	0.001	No
SM-DP Key Signing	0.028	No
ECDH Shared Secret Computation	0.006	No
SM-DP Shared Secret Computation	0.006	No
Profile Data Preparation	0.000	No
PSK-TLS Encryption	2.230	No
PSK Key Derivation (AES-128)	2.177	No
AES-128 Encryption	0.012	No
HMAC Generation	0.003	No
PSK-TLS Decryption	1.814	No

PSK Key Derivation for MAC (AES-128)	1.074	No
HMAC Verification	0.000	No
PSK Key Derivation for Decryption (AES-128)	0.738	No
AES-128 Decryption	0.001	No
Total Process Operations	37.247	
Total Protocol Time (including network delays)	35.392	

3. Connectivity and System Diagnostics

3.1 Component Status

Component	Status	Response Time
SM-DP	Online	0.359 seconds
SM-SR	Online	0.119 seconds
eUICC	Online	0.030 seconds

3.2 Detailed Process Timeline

Process	Entity	Duration (s)	Status
eUICC Registration	eUICC	0.000	success
ISD-P Creation	SM-SR	0.000	success
ECDH Key Establishment	eUICC	0.000	success
Profile Preparation	SM-DP	0.000	success
Profile Download and Installation	eUICC	0.000	success
Profile Enabling	SM-SR	0.000	success
Status Check	SYSTEM	0.000	success