

# 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 time taken for each step of the process:

Process Step	Time (seconds)	Bottleneck
Registration	2.500	No
ISD-P Creation	1.500	No
Key Establishment	3.000	No
Profile Preparation	8.500	Yes
Profile Installation	2.000	No
Profile Enabling	1.500	No
Total Process Time	19.000	

### 2.1 Traditional Bottleneck Analysis

The following steps were identified as bottlenecks in the M2M RSP process (taking more than 20% of the total process time):

- Profile Preparation: 8.500s (44.7% of total time)

### 2.2 Enhanced Bottleneck Analysis

The following steps exceeded the fixed bottleneck threshold of 5.0s:

Process Name	Duration (s)	Entity	Threshold (s)	Excess (s)
Profile Preparation	8.50	SM-DP	5.00	3.50

**Bottleneck Summary:**

- Total Processes: 6
- Bottleneck Count: 1
- Average Duration: 3.16s
- Maximum Duration: 8.50s
- Minimum Duration: 1.50s

### 3. Connectivity and System Diagnostics

#### 3.1 Component Status

Component	Status	Response Time
SM-DP	Online	2.060 seconds
SM-SR	Online	N/A
eUICC	Online	N/A

#### 3.2 Detailed Process Timeline

Process	Entity	Duration (s)	Status
eUICC Registration	eUICC	2.500	success
ISD-P Creation	SM-SR	1.500	success
ECDH Key Establishment	eUICC	3.000	success
Profile Preparation	SM-DP	8.500	success
Profile Download and Installation	eUICC	2.000	success
Profile Enabling	SM-SR	1.500	success