

eSIM for the IoT Ecosystem



ABOUT VALID

Valid is a leading provider of interoperable mobile services, offering trusted connectivity solutions to device makers, mobile operators, and IoT players worldwide. With nearly seven decades of industry expertise serving a diversity of customers, we are dedicated to delivering future-proof solutions with enhanced security and reliability. Our steadfast commitment to excellence drives us to bring innovations with the latest technologies, prioritizing data security, and enabling our clients to stay ahead in the rapidly evolving digital landscape. Join us in empowering the future of connectivity.

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Unlock Scalable IoT Connectivity with Valid's eSIM Solution

As the Internet of Things (IoT) scales globally, industries like smart cities, automotive, industrial automation, and utilities are under pressure to deliver secure, seamless, and cost-effective connectivity. With GSMA Intelligence forecasting 5.8 billion cellular IoT connections by 2030, the opportunity is massive—but so are the challenges.

From managing global deployments to ensuring reliable connectivity over 10–15 years, success in IoT demands more than just network access. It requires future-ready infrastructure, flexibility across markets, and deep wireless expertise. That's where Valid comes in.

Valid's <u>eSIM for IoT</u>—combined with its <u>Remote SIM Provisioning (RSP)</u> Platform—enables OEMs, MNOs, and service providers to deploy, manage, and scale connected devices globally with a single hardware variant, optimized for longevity, flexibility, and performance.

With the introduction of the GSMA's new SGP.32 specification – purpose-built for IoT – Valid's solution now supports both legacy M2M (SGP.02) and next-generation (SGP.32) architectures, providing full flexibility and future-proof integration across evolving deployments.



What is Remote SIM Provisioning (RSP)?

Remote SIM Provisioning (RSP) is a technology defined by the GSMA that enables SIM profiles to be securely downloaded, activated, and updated over the air (OTA).

This eliminates the need for physical SIM swaps and allows devices to:

- Seamlessly switch between mobile networks
- · Adapt to changing coverage or cost requirements
- Stay connected for the long term without field visits

<u>Valid's RSP platform</u> ensures secure, compliant, and scalable subscription management, helping IoT deployments thrive in any region, under any network condition.

Overcoming Global IoT Connectivity Challenges

Scaling IoT deployments across borders brings complexity: connectivity in remote environments, network availability over time, regulatory compliance, and hardware limitations all add up. Traditional approaches, like soldered SIMs tied to a single operator, may improve durability but lock devices to one region, requiring multiple SKUs for global rollouts.

This fragmentation inflates manufacturing costs, complicates logistics, and slows time to market.

<u>Valid's eSIM solution</u> redefines this model. By integrating a GSMA-compliant eUICC during manufacturing, device makers can activate and manage network profiles remotely and dynamically. That means:

- One global hardware variant (Single SKU)
- No manual SIM swaps or on-site interventions
- Future-ready connectivity that evolves with your business

Combined with Valid's Remote SIM Provisioning Platform, IoT devices can switch networks, update profiles, or adjust connectivity strategies in real time – delivering greater flexibility, lower operational costs, and faster global expansion.

Accelerate Your IoT Rollout.

Valid enables a smooth path from factory floor to global deployment, cutting launch timelines and eliminating connectivity bottlenecks.

Why Choose Valid's eSIM for IoT?

Valid's eSIM is more than a connectivity enabler – it's a strategic asset built for the long-term success of IoT deployments. Compact, tamper-resistant, and compliant with the latest GSMA eUICC standards, Valid's eSIM is engineered to support remote lifecycle management and seamless over-the-air profile delivery.

Once embedded at the manufacturing stage, the eSIM allows devices to connect to virtually any mobile network worldwide from first power-on—no physical SIM card or manual configuration required.

When paired with Valid's Remote SIM Provisioning Platform, the result is a comprehensive, scalable solution that eliminates the need for multiple SKUs, region-specific configurations, or costly field support. With Valid's future-ready eSIM platform, businesses can stay ahead of evolving connectivity requirements and regulatory demands – while unlocking new revenue streams across the IoT value chain.

Key Benefits at a Glance

Single SKU Simplicity

Launch globally with a single device variant that works across regions and networks. Valid's solution eliminates the burden of fragmented SKUs, reduces warehousing complexity, and lowers inventory costs.

Carrier & Contract Flexibility

Dynamically select or switch MNOs based on predefined business rules—optimizing for cost, coverage, or performance without being locked into long-term contracts.

Future-Proof Connectivity

Easily accommodate updates to network technologies, security protocols, and local regulations. Valid's eSIM keeps devices compliant, secure, and connected throughout their lifecycle.

Designed for Longevity

Industrial and automotive-grade eSIMs support extended field operation, while power-optimized architecture extends battery life-ideal for remote or off-grid applications.

Security You Can Trust

Valid's secure manufacturing process ensures advanced tamper resistance and robust protection against cyber threats, with encrypted environments for hosting sensitive applications and credentials.

Market Insight

Analyst firm Omdia projects that eSIM adoption in IoT will surpass 3.6 billion connected devices by 2030, driven by advancements in remote provisioning and the increasing need for flexibility in global deployments. This surge underscores how eSIM is becoming a foundational technology – empowering device makers, service providers, and end users alike.

How Valid's eSIM and RSP Platform Empower the IoT Ecosystem

Valid's eSIM and Remote SIM Provisioning (RSP) Platform are designed to serve the entire IoT value chain—from device makers to service providers and mobile network operators (MNOs). Together, they simplify global connectivity, streamline logistics, and extend device lifecycle value.

Below is a breakdown of how each stakeholder benefits from Valid's end-to-end solution:

Device Makers/ OEMs

Global Logistics, Simplified

Deploy a single eSIM SKU across multiple markets and MNOs, reducing inventory complexity, warehousing costs, and production timelines.

Compact Design & Miniaturization

Soldered, chip-sized form factors reduce PCB space usage—freeing up room for additional components and enabling sleeker industrial designs.

Ruggedization for Harsh Environments

Eliminating plug-in SIMs enhances durability - enabling devices to be dustproof, waterproof, and more resistant to temperature extremes and vibration.

Future-Proof Connectivity

OTA (Over-the-Air) updates allow devices to evolve with changing network conditions, regulations, and GSMA specifications—no truck rolls or SIM swaps needed.

Extended Lifespan

Automotive and industrial-grade eSIMs are built to last, with extended endurance and data retention for deployments exceeding 10–15 years.

Power Efficiency

Optimized power consumption design helps preserve battery life—critical for remote or off-grid IoT applications, reducing maintenance and replacement cycles.

Embedded Security

eSIMs are soldered in a secure environment and include advanced encryption and tamper-resistant features to safeguard sensitive device data and applications.

BOM (Bill of Materials) reduction

Eliminate physical SIM components and trays to simplify the assembly process and to get a smaller device footprint. This all translates to a reduction on the mechanical failure risks and the cost of your IoT devices.



Service Providers

Full Cost Control

Swap carriers dynamically to negotiate better rates without needing new SIM cards or dispatching field teams—driving down connectivity costs over time.

Truly Global Reach

A single device variant works across geographies, helping providers scale services faster and more efficiently.

Enhanced Data & Network Security

Integrated secure elements offer encryption and authentication mechanisms, protecting IoT data and device integrity across the network.

5G-Ready by Design

Valid's eSIM solution is fully compatible with 5G networks, supporting lower latency, greater device density, and high-speed performance.

Operational Efficiency

No physical servicing or manual SIM replacements necessary. RSP enables remote subscription management, even in hard-to-reach areas.

Stronger ROI

By lowering logistics costs, enabling real-time connectivity changes, and reducing downtime, service providers unlock more value from every connected device.

Mobile Network Operators (MNOs)

New Revenue Streams

As more IoT devices connect, MNOs gain access to new markets and customer segments, from utilities and logistics to agriculture and healthcare.

Hardened Network Security

Tamper-resistant hardware and over-the-air patching help protect the MNO's infrastructure and ensure end-to-end integrity.

Easier Network Migration

eSIMs simplify device updates and accelerate transitions during network evolution – whether it's 4G to 5G, or upcoming generational shifts.



"Built for Manufacturers. Empowering Service Providers. Scalable for MNOs. Valid's eSIM delivers flexibility and performance to every stakeholder in the IoT value chain."

Technical Specifications

Valid's eSIM OS is built on industry-leading standards to ensure interoperability, performance, and long-term reliability across diverse IoT applications.

Standards Compliance

- ETSI Release 15 specifications
- GSMA SGP.01 / SGP.02 (Embedded SIM in M2M Devices)
- GSMA SGP.21 / SGP.22 (Embedded SIM in Consumer Devices)
- GSMA SGP.31 / SGP.32 (Embedded SIM in IoT Devices specification supported; certification planned)

Platform Certifications

- GSMA SAS-SM certified data centers for subscription
 management
- GSMA SAS-UP certified facilities for secure SIM/eSIM
 production
- Aligned with GSMA Remote SIM Provisioning (SGP.02 and SGP.32)

Smart Card Technology

- Oracle Java Card™ specification
- GlobalPlatform Card Specification
- GlobalPlatform Amendments (including Amendment B)
- GlobalPlatform Device Technology

Security & Access Control

- Secure Element Access Control
- Tamper-resistant design
- Advanced encryption for sensitive data and applications

Connectivity & OTA Features

- SIM / USIM / ISIM applications
- CAT, SAT, USAT compatibility
- Over-the-Air (OTA) update support
- Bearer Independent Protocol (BIP) / CAT-TP
- 5G-ready architecture

These features ensure compliance with mobile operator requirements while delivering high performance, robust security, and future network compatibility.

Built for the Future. Ready for Today.

Valid's integrated solution delivers a unified approach to global IoT enablement—helping every stakeholder maximize performance, minimize risk, and scale with confidence.



Valid eSIM Form Factors and Grades

Valid offers a wide range of eSIM form factors tailored to IoT deployments across industries, device designs, and environmental conditions.

FORM FACTOR	DESCRIPTION	USE CASE
MFF2	Solderable chip (surface-mounted)	Ideal for rugged and compact IoT devices
2FF / 3FF / 4FF	Traditional plug-in SIM sizes	For prototypes or non-industrial use
Wafer	Custom chip-level integration	High-volume manufacturing environments

Grades Available:

- Commercial Grade for consumer and standard industrial applications
- Industrial Grade enhanced durability, extended temperature range support and shock tolerance
- Automotive Grade meets AEC-Q100 standards for in-vehicle systems and telematics

Valid's eSIMs are designed to perform in harsh, mission-critical environments—from remote agriculture to automotive, smart grids, and beyond.



Valid Remote SIM Provisioning Platform for IoT

Valid's Remote SIM Provisioning (RSP) Platform is a GSMA-compliant, secure, and scalable solution that simplifies SIM profile management throughout the lifecycle of IoT devices. It works seamlessly with any GSMA-compliant eSIM, enabling flexible, cost-effective deployment and management across geographies and networks.

With the emergence of SGP.32, the new GSMA standard for IoT, Valid's RSP platform supports both legacy M2M (SGP.02) architectures – based on SM-DP and SM-SR – and modern SGP.32 deployments using SM-DP+. It also integrates advanced components such as the IoT Profile Assistant (IPA) and the eSIM IoT Remote Manager (eIM) to simplify profile activation, orchestration, and compliance in next-generation IoT environments.



Key Capabilities

Over-the-Air Profile Management

Remotely download, enable, disable, and delete operator profiles (IPP - Interoperable Profile Packages) without physical access to the device

Multi-Tenant Architecture

Supports Mobile Network Operators (MNOs), Mobile Virtual Network Enablers (MVNEs), and IoT service providers with isolated, secure tenant environments.

High Availability Infrastructure

Operates 24/7 through SAS-SM certified data centers in Europe and the USA, delivering secure, reliable performance for subscription management services.

Optional Bootstrap Connectivity

To simplify initial device activation and testing, Valid also offers bootstrap connectivity options through strategic partnerships. This enables out-of-the-box connectivity at first power-on—helping OEMs and service providers streamline manufacturing, testing, and early-stage deployment before switching to operational profiles.

Business Advantages

Seamless Global Deployments

Activate and update subscriptions remotely-no need for SIM replacements or on-site interventions.

Lower Operational Costs

Reduce logistics, warehousing, and service dispatches with centralized, automated provisioning.

Adaptability to Network Evolution

Stay ahead of technology sunsets and regional regulatory changes with flexible, future-proof connectivity management.

Valid's RSP platform guarantees secure, policy-driven profile management at scale—backed by industry certifications and global infrastructure.



Maximize Connectivity Flexibility with Valid's Dynamic Multi IMSI

As IoT deployments grow across borders, the ability to dynamically manage connectivity becomes a critical differentiator. Valid's Dynamic Multi-IMSI solution empowers service providers to optimize coverage, control costs, and reduce downtime—without requiring profile downloads or manual network provisioning.

What is Multi-IMSI?

Multi-IMSI is a software-based solution that allows a single SIM profile to host multiple IMSIs (International Mobile Subscriber Identities). Valid's advanced Java-based applet runs on the SIM and automatically switches between IMSIs based on predefined business rules, such as:

- Network coverage quality
- Country or region restrictions (e.g., permanent roaming bans)
- Cost optimization thresholds
- Custom-defined operational logic

Instead of downloading a new profile through SM-DP+ each time a change is needed, the SIM selects the optimal IMSI on the fly, ensuring uninterrupted connectivity.



Key Benefits

No Delays, No Downtime

Instantly switch between networks—ideal for logistics, transportation, and devices that move across borders or experience fluctuating network quality.

Permanent Roaming Compliance

In markets where permanent roaming is restricted, SGP.32 offers a compliant and flexible alternative – allowing IMSI switching through Multi-IMSI logic, or seamless operator change via SM-DP+. When combined with Valid's eSIM, eIM, and IPA, this architecture ensures uninterrupted service while meeting local regulatory requirements.

Fewer Integrations, Lower Costs

Avoid costly SM-DP integrations with new MNOs. Multi-IMSI logic reduces the need to onboard additional subscription management entities (SM-SRs or SM-DPs).

Enhanced Reach with a Single SKU

Maximize geographical coverage and commercial flexibility using just one Valid eSIM variant—reducing complexity for OEMs and service providers alike.

When combined with Valid's RSP platform and eSIM infrastructure, Multi-IMSI delivers a hybrid solution that blends over-the-air provisioning with intelligent, embedded logic—ensuring truly global, adaptable IoT connectivity.



IoT Industries and Use Cases

Valid's eSIM, Remote SIM Provisioning platform, and optional bootstrap connectivity services, are optimized for industries where space, durability, and global connectivity are critical. They also enable seamless device activation and testing right from manufacturing or distribution, simplifying logistics and accelerating time to market.

Designed for:

- Connected Utilities: Smart meters, grid infrastructure, and environmental monitoring
- Industrial & Asset Tracking: Manufacturing equipment, shipping containers, and heavy machinery
- Automotive & Transportation: Telematics units, fleet tracking systems, and in-vehicle connectivity
- Smart Cities & Infrastructure: Surveillance, traffic control, and public service digitization
- Point-of-Sale (PoS) Terminals: Secure, always-on mobile payment solutions for retail and transit
- Customer Premises Equipment (CPEs/Routers): Wireless broadband gateways and backup connectivity devices in residential, enterprise, and remote locations



Ready to Power the Next Generation of IoT?

Valid's eSIM solution and Remote SIM Provisioning platform are built to support today's deployments and tomorrow's possibilities—whether you're launching connected devices across borders, managing long-term subscriptions, or transitioning to the latest GSMA IoT architecture.

With full support for both SGP.02 and SGP.32 ecosystems, including RSP, Multi-IMSI, IPA, and eIM – and optional bootstrap connectivity for out-of-the-box activation, Valid enables OEMs, service providers, and mobile operators to deliver flexible, secure, and scalable IoT connectivity with confidence.

Let's Build Smarter, Connected Ecosystems Together

Ready to simplify your global IoT deployment?

Connect with our team today to explore how Valid can help you accelerate your global *IoT connectivity* strategy.



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