

PUBLICATION 1 SERVICE DESCRIPTION FOR IOT MANAGED GLOBAL CONNECTIVITY: IOT CONNECT ADVANCED SERVICES

1.1 Service Definition

The IoT Connect Advanced service (the "**Service**") is subject to the Specific Conditions for IOT Managed Global Connectivity: IOT Connect Advanced. The Service provides Customer with end-to-end connectivity between its fleet of Machines equipped with SIM Cards and Customer's site(s) termination point(s):

- regardless of the country where the SIM Card is located (as long as there are existing roaming agreements in place permitting the provision of IOT Connect Advanced Service with the in-country operators), and
- whether the Machine is moving or standing still.

The Service can be used directly by Customer for its own needs (business operations and process, monitoring, control, etc.) or can be integrated by Customer in a turn-key solution offering Value Added Solutions and application to end users.

The Service may include the following Options:

- Flexible Lifetime; and
- Multi-Domestic Services.

These options are described in specific Service Descriptions that are made available to Customer upon subscription. Customer is informed that the Options are not always compatible between them and subject to restrictions.

1.2 Service Overview

The Service includes the following elements:

- The supply of SIM Cards and their provisioning.
- The collection, transport, and delivery of Customer data on local or foreign Mobile Networks. Standard.
- The connectivity between Customer's termination point(s) and the IoT Device Connection Platform's (DCP).
- Subject to Clause 1.8, the end-to-end communication set-up and operation between the SIM Cards and termination point(s) on the Customer or provider's premises.
- The access to the IoT Device Connection Platform (Portal and APIs) allowing operating and managing the Services and monitoring SIM Cards' activity.
- Service Managed Initial for commercial and technical questions – (see Clause 1.14).
- An SMS solution to exchange text messages (SMS-MO and SMS-MT).

The Customer may order optional elements that may be subject to additional charges:

- Secured fixed data connectivity for the exchange of Customer's data with Customer's IoT applications.
- A secured SMS-C connectivity for the exchange of Customer SMS communications between Customer's IoT application and Machines.
- A Traffic Control mechanism to protect Customer's IoT communications.
- IoT Services Device Test Kit allowing Customer to test the interoperability of certain devices with the Service.
- Service Managed Intense IoT Services managed implementation.
- The creation of a test or prototype phase allowing Customer to start in pre-production and anticipate solution integration.

The Service does not include:

- the supply of communication modems to Customer;
- the integration of the Service into a Customer Value Added Solution or Customer's IT systems; and/or
- the supply of Customer gateways and any implementation on Customer's equipment.

1.3 IoT SIM Cards

1.3.1 Dedicated SIM Cards and Chips

For mass production, Orange offers a wide range of SIM Cards or Chip form-factors and specifications. Customer will select the type of SIM Cards based on its own requirements. A minimum order of 1,000 SIM cards batch applies. These dedicated IoT Connect Advanced SIMs have a specific M2M numbering range (MCC 901 MNC 31).

For pre-production, pilot phase or for test purposes, Customer may order other form factors and quantities. This is subject to further analysis and/or additional charges.

1.3.2 **SIM Cards and Chips Portfolio**

The types of SIM Cards that can be provided are as follows.

1.3.2.1 **IoT SIM Form-Factors**

The IoT SIM Cards are ETSI normalized (TS 102 221) and ROHS compliant.

Standard 2FF/3FF/4FF & Multicuts	Reinforced 2FFR/3FFR
<ul style="list-style-type: none"> ▪ USIM card (ETSI - TS 102 221). ▪ 128k memory. ▪ SIM cards sizes: <ul style="list-style-type: none"> ▪ 2FF: 25 x 15 mm ▪ 3FF: 15 x 12 mm ▪ 4FF: 12.3 x 8.8 mm ▪ Multicuts (Duo & Trio) ▪ Operational and Storage Temperature: TB (-25°C to +85°C). ▪ Data Retention Time: RA (10 years at 85°C). ▪ Minimum Updates: UB (500,000 update cycles). 	<ul style="list-style-type: none"> ▪ USIM card (ETSI - TS 102 221). ▪ 128k memory. ▪ SIM cards sizes: <ul style="list-style-type: none"> ▪ 2FFR: 25 x 15 mm ▪ 3FFR: 15 x 12 mm ▪ Reinforced plastic (PTFE). ▪ Operational and Storage Temperature: TB (-40°C to +105°C). ▪ Humidity: HA (high humidity). ▪ Data Retention Time: RA (10 years at 85°C). ▪ Minimum Updates: UB (500,000 update cycles).

1.3.2.2 **IoT SIM Cards Chip (MFF2)**

The IoT SIM Cards chips are ETSI normalized (TS 102 671) and ROHS compliant.

The format is fully standardized (VQFN-8A), compatible with "pick & place" process, and anti-theft mechanism (soldered and unusable in a standard device).

Industrial MFF2	Automotive MFF2
USIM chip (ETSI - TS 102 671). 128k memory. SIM chip size: 5 x 6 mm. Operational and Storage Temperature: TB (-40°C to +105°C). Moisture/Reflow conditions: MA (JEDEC J-STD-020D). Humidity: HA (high humidity). Data Retention Time: RA (10 years at 85°C). Minimum Updates: UB (500,000 update cycles).	USIM chip (ETSI - TS 102 671). 128k memory. SIM chip size: 5 x 6 mm. Operational and Storage Temperature: TB (-40°C to +105°C). Moisture/Reflow conditions: MA (JEDEC J-STD-020D). Humidity: HA (high humidity). Corrosion: CA (salt atmosphere according to JESD22-A107). Vibration: VA (automotive vibration according to JESD22-B103). Shock: SA (automotive shock according to JESD22-B104). Data Retention Time: RC (15 years at 85°C). Minimum Updates: UC (1,000,000 update cycles).

1.3.2.3 **SIM Card Settings**

All SIM Cards are provided with dedicated settings:

SIM Setting	Default Setup	Comment
PIN1 (Personal Identification Number)	Disabled Set to 0000	Option: can be enabled and the code can be changed on demand. PIN blocked after three (3) incorrect attempts.
PUK1 (Personal Unblocking Key)	SIM specific	SIM Card blocked after ten (10) incorrect attempts.
PIN2 (Personal Identification Number)	Enabled Set to 0000	Option: code can be changed on demand. PIN blocked after three (3) incorrect attempts.
PUK2 (Personal Unblocking Key)	SIM specific.	SIM Card blocked after ten (10) incorrect attempts.
ADN (Abbreviated Dialing Numbers)	2 positions	Can be edited.
SDN (Service Dialing Numbers)	2 positions	Cannot be edited.
FDN (Fixed Dialing Numbers)	2 positions	List of accessible number or pre-fixes. Can be edited after PIN2 control.
SMS	10 positions	SMS storage can be edited.

SIM Setting	Default Setup	Comment
PLMN (List of roaming networks to use in priority)	80 positions	List controlled by Orange, cannot be modified by the Customer.

1.3.2.4 **SIM Cards Shipment.** Orange strongly recommends that Customer establishes a delivery planning in line with its planned production forecasts in order to improve the delivery process and the logistics on the SIM Cards manufacturer’s side. For large volumes, it can facilitate the delivery planning and the resource commitment.

The typical manufacturing lead times before the shipment of SIM Cards, which may vary depending on the SIM Card manufacturer’s workload, are:

- If order is not anticipated (there is no existing stock): around 4-6 weeks;
- If order is anticipated (there is existing stock): around 1 week.

The actual shipment of SIM Cards may take from 48 to 72 hours within Europe, and up to 1 week to the rest of the world. Additional local delays may occur due to tax and customs administration or any specific requirement from Customer.

Shipment of SIM Cards is subject to the laws of the country of destination and export, import and customs laws and regulations (such as the export and re-export controls under the U.S. Export Administration Regulations or similar regulations of the U.S. or any other country) may apply.

1.3.3 **SIM Card Warranty.** SIM Cards have a 36 months warranty starting from the date of receipt of the SIM Cards by the Customer. Upon request from Customer and subject to the Manufacturer’s agreement and/or additional charges, the warranty term may be extended.

The warranty will not apply:

- If Customer does not comply with the Specific Conditions.

The warranty only covers the SIM Card itself, i.e. Orange will only make available the replacement SIM Card itself. This means e.g. that the warranty does not cover any logistics costs for the recovery of the Machines, nor the cost of removal of the SIM Card from the Machine.

1.4 **SIM Cards Provisioning & Network Features**

Each SIM Card will have a subscription. The subscription packages consist of a combination of configurations of the roaming profile, bearer services, APN access, and pricing profile:

- **Roaming profile:** (optional): a list of countries where connectivity is allowed for the Machine. For more details, see Clause 1.11 (Traffic Control).
- **Bearer services:**

Usage Type / Bearers	SIM Profile	
	Data Only	Data + Voice
Packet Data (outgoing / incoming) Mainly used for data transfer from Machines to servers.	Activated	Activated
SMS (Mobile Originated / Mobile Terminated) Used from/to Machines to/from servers.	Activated	Activated
Voice (Mobile Originated Calls/ Mobile Terminated Calls) Mainly used for alarms / security / emergency.	Non-activated	Activated

- **APN access:** contains the relevant access information to establish data sessions. Various APN settings are available:
 - Orange Shared APN or Customized APN’s name with private IP addresses;
 - Customer dedicated/private APN; or
 - Multiple APNs: can be used depending on the ability of the IoT device to manage several APNs.
- **Pricing profile:** sets the relevant Charges applicable to the subscription consumption, in accordance with the Charges Schedule.

Note: The "Test Ready Mode" allows rating to use bulks and caps included in the base connection fee. It is suspending recurring charges for the period/conditions when the device is supposedly being manufactured and tested.

The configuration of the subscription packages is performed in accordance with the contractual and commercial agreements. All the configuration information must be provided by Customer before the Customer on-boarding phase.

1.5 Test & Prototype SIM Cards

Upon agreement with Orange, Customer can be provided with Test SIM Cards or Prototype SIM Cards (each as defined below) in order to test the Service or evaluate its operations integration prior to entering the production step:

- Test SIM Cards: an agreed number of SIM Cards based on a pre-defined profile are provided free of charge to Customer for test purposes.
- Prototype SIM Cards: an agreed number of SIM Cards based on a flexible profile are provided for an agreed fee to Customer for pre-production evaluation purposes.

The SIM Card Test option and the SIM Card Prototype option will be defined in a separate document prepared by Orange and provided to Customer, describing in particular the conditions of the temporary service, fees, and invoice terms, as applicable.

1.6 Global Coverage

The SIM Cards use the following global footprint, always subject to legal, regulatory, and roaming agreements limitations:

- The direct mobile network footprint of Orange SA and its Affiliates in Europe and Africa.
- Partners of Orange SA in the Global M2M Alliance (GMA).
- Other roaming partners of Orange worldwide.

The selection of the appropriate network is automatically performed by the SIM Card depending on the priority networks (steering rules) defined by Orange.

The global coverage described above is subject to change at any time.

1.7 IoT Connectivity Management Platform

1.7.1 Introduction. Orange provides Customer an access to the IoT connectivity management platform and fleet management tools (Device Connection Platform or DCP) to operate the Service and monitor SIM Cards' activity.

The Customer can manage and monitor the elements of the Service through or a web-based self-service portal (the "IoT Portal") or an API (the "IoT API").

The IoT services may be used 24 hours a day, 7 days a week.

1.7.2 Features

Inbox	Fulfillment & subscription requests. Triggers actions & alerts. Incidents. Announcements.
Inventory	Subscription inventory & traffic search. Order SIM/SIM stock. eUICC inventory/agreements/stock/profile stock. Order eUICC/stock/profile stock. Enterprise information.
Operations	Real-time diagnostics. Top traffic statistics. Subscription state info. Trigger management automation. Approval central.
Reports	Download reports, invoices, usage data.
Support	Create fulfillment request. Report incident. Document library.
Administration	User, role, enterprise, pricing administration. Permission library. Subscription packages. Resources/connectivity. Announcements.

The list of features may evolve as DCP is developed in agile mode with a new release every two months: a dedicated User Guide is provided to Customer via the IOT Portal and will be kept up to date.

1.7.3 **The IOT Portal.** The IOT Portal is a web application to which Customer connects via HTTPS (Hypertext Transfer Protocol Secure) using a dedicated login and password. Only authorized users who have been given access to the IOT Portal by Customer can view Customer's content and related IoT Services activities. Access to the IOT Portal only requires an Internet connection. After being authenticated on the IOT Portal with its own login and password provided by Orange (or the Customer's user administrator), the "user" can start using the Portal.

1.7.4 **API.** The API (Application Programming Interface) allows Customer's applications to have visibility and control over the Service. The API environment is fully part of the service delivery cycle.

The API is built upon common web services standards, keeping integration efforts to a minimum and allowing Customer to immediately control key aspects of connected solutions.

The API allows Customer to develop the integration of its choice: business logic and enterprise security standards ensure Customer's communications data are only available to Customer, directly into Customer information system, like CRM or ERP system.

Customer has the help of the API user-guide to develop its integration, test it safely, and put it into production.

1.8 Secured Fixed Data Connectivity from Customer Central Site up to the Mobile Network

The possibilities for Customer to connect its central site and data server(s) to the DCP core network are:

- **Internet (Standard):** the devices use an APN (shared or dedicated) and the data traffic is transported over the Internet;
- **IPSec VPN (Optional):** the devices use a Customer dedicated APN and the data traffic is transported securely through an IPsec tunneling over the Internet. The IPsec gateway on Customer site is not provided and maintained by Orange;
- **Business VPN Gallery (Optional):** the devices use a Customer dedicated APN and the data traffic is transported securely with a guaranteed quality via the Business VPN solution of Orange. This configuration is subject to a separate order, service description, specific conditions, and may be subject to additional charges.

The most suitable solution is determined jointly between Orange and Customer in the pre-sales phase. Any customization of an Orange standard solution needs to be validated by Orange.

1.9 SMS Solution to Exchange Texts (SMS-MO AND SMS-MT)

Customer has the possibility to receive SMS (MT) and send SMS (MO) from/to dedicated IoT Connect Advanced SIM Cards.

1.10 Secured SMS-C Connectivity (Optional)

Customer can transfer mobile text messages (SMS) to and from deployed devices by using SMS-C platform. SMS-C is acting as a "bridge" between the Customer IP network and the mobile network. During the delivery process Customer obtains a unique customer account number and log-in credentials to access the dedicated SMS-C. SMS can be sent and received by deployed devices using the SMPP protocol.

1.11 Traffic Control (Optional)

- **Roaming Profile (Optional):** This feature allows Customer to control the IoT SIM usage when roaming:
 - per country
 - per type of usage (Voice, SMS, Data) and per APN
 - on 2G, 3G and 4G (LTE) networks

This option is implemented in Orange's core network and is compatible with all IoT SIM and devices. Restrictions are defined per country and by visited roaming network. The traffic is blocked in real-time in accordance with defined rules.

- **IP Filtering over the internet access (Optional):** This feature allows Customer to control all incoming or outgoing data sessions of IoT devices, by checking IP address, port, and protocol with authorized list. It controls all data communications in home network and when roaming, for all technologies supporting packet data communication (2G, 3G, 4G (LTE)). Data sessions will only be able on an authorized list of IP addresses. The IP Filtering is implemented on the Orange network and is compatible with all IoT SIM and devices. It only works on data traffic with APN over the Internet.
- **Voice Call Barring (Optional):** This feature allows Customer to block either all incoming or all outgoing calls, in 2G or 3G. It is implemented in the core network and compatible with all devices. It is working within visited operator networks. With or without Camel agreement, with this option either all incoming or all outgoing are blocked. A tone is played for blocked calls; there is no re-routing to a voicemail or other destination. There is no charge for unauthorized call attempts.
- **SPBPC (Optional):** Subscription Package Based on Policy Control. This feature allows the Customer to follow in real time data consumption of its fleet by deactivating SIM cards or to be notified when the data volume authorized by period is reached. The Customer determines the data volume. The Customer has the choice to deactivate SIM cards remotely and automatically (when of the set data volume is consumed) or only to be notified by email when a SIM has reached the data volume before the end of the period. Then, at the beginning of next period, SIMs deactivated will be automatically reactivated with full packet of data again.

1.12 IOT Services Device Test Kit (Optional)

Orange can run a set of pre-defined tests for the device(s) Customer intends to use. Such tests are part of the optional Device Test Kit services, which are subject to additional charges.

1.13 IOT Services Managed Implementation**1.13.1 Dedicated Implementation Team (Build Phase)**

Upon ordering, Customer will select one of the following service types:

- Managed Implementation Initial (which is included in the global service set up charges);
- Managed Implementation Intense (which may be subject to additional charges).

In order to deploy the M2M Services, an Orange dedicated Implementation Manager (Managed Implementation Initial) will coordinate the actions within Orange; however, the Service Manager will be and remain the main point of contact.

As part of Managed Implementation Intense Orange will provide a dedicated Project Manager in addition to or in lieu of the Implementation Manager, as agreed between the Parties.

1.14 IOT Services Managed or Optimized (Optional)**1.14.1 Service Management Team (Run Phase)**

Upon Customer request, Orange may provide additional service management services. Customer can choose between: IoT Services Managed or IoT Services Optimized. Both come in two services types: Initial or Intense.

IoT Services Managed Initial is the default service management included in IoT Connect Advanced. This service includes the IoT L1 Helpdesk, the Self-management and Self-diagnosis services, and the control of SIM orders and delivery. IoT Services Managed, Optimized with their service types Initial and Intense are described in the Service description IoT Services Managed, Optimized.

1.15 IOT L1 Helpdesk

The Orange IoT L1 Helpdesk provides direct assistance and responds to any Customer queries related to the daily management, technical matters, and incident escalation.

The Helpdesk can be contacted by:

- Email: helpdesk.iot@orange.com;
- Phone: +32 2750 2750 and/or dedicated local call numbers;
- Portal ticketing tool.

Assistance will be available in English. The Orange Helpdesk is available 24x7x365 for first level support.

1.16 Glossary

- APN - Access Point Name
- BIP – The Bearer Independent Protocol is a transport protocol for UICC based applications.
- BSS - Business Support System
- CSD - Circuit Switched Data
- DCP - Device Connection Platform
- GMA – Global M2M Alliance
- GPRS - General Packet Radio Service
- IoT - Internet Of Things
- M2M - Machine to Machine
- MCC – Mobile Country Code
- MNC - Mobile Network Code
- MO - Mobile Originating
- MT - Mobile Terminating
- SIM - Subscriber Identity Module
- SMS - Short Message Service
- SMS-C - Short Message Service Center
- SP - Subscription Package
- SPBPC - Subscription Package Based on Policy Control
- VPN - Virtual Private Network

END OF SERVICE DESCRIPTION FOR IOT MANAGED GLOBAL CONNECTIVITY: IOT CONNECT ADVANCED SERVICES