



OPTIGA™ Connect IoT Samples Quick Start Guide

www.infineon.com/optiga-connect-iot



1 Scope

This guide is intended for customers familiar with cellular technologies and conventional SIMs. It outlines the eSIM onboarding process for IoT devices.

In particular, it explains how to integrate the OPTIGA™ Connect IoT sample to a board and how to activate the Tata Communications management platform.

2 Download

First please download and carefully read the OPTIGA™ Connect IoT OC2321 datasheet from www.infineon.com/optiga-connect-iot

3 Check modem compliancy

The big difference between an eSIM and a conventional SIM is the eSIM's unique remote profile management functionalities. To support these, the **cellular modem** must also meet certain additional requirements and provide additional functions, namely:

- › Support at least one of the following network access technologies: 2G, 3G, LTE/4G
- › Support TCP and/or UDP, BIP (with minimum command set) protocols
- › Enable the following network connection control functions:
 - RPLMN; quality of service; new network selection after SIM/USIM update
- › Support SMS functionality: point-to-point MO and MT SMS; SMS cell broadcast; text and PDU mode
- › Provide the following features:
 - Basic SAT commands
 - AT command AT+ CRSM (restricted SIM access)

For more background info, read the 'System integration' section in the eSIM datasheet.

If in doubt, contact your cellular modem manufacturer to ensure eSIM compatibility.

It may be possible to add new features through a FW update.

4 Integrate

On the hardware side, the only difference is the form factor and an extended temperature range.

For evaluation purposes, the OPTIGA™ Connect IoT sample kit offers different form factors: classic plastic card (FF2-FF4) and VQFN8 (MFF2). Please consider:

- › adding an appropriate SIM card holder to your design (only for evaluation purposes) and/or
- › adding a VQFN8 (MFF2) footprint to your device PCB as documented in the 'SMD package' section in the eSIM datasheet

Note: The electrical connection to a terminal/cellular modem is identical to that of a SIM.

5 Configure modem

Once you have established that your cellular modem fully supports eSIMs, be aware that certain functionalities have to be activated, followed by a reset, to enable the eSIM.

Here is an example for the Quectel EC25 modem:

- › Setup the APN (Access Point Name) for the PDP context : **AT+CGDCONT=1,"IP","Terminal"**
- › Enable BIP (Bearer Independent Protocol): **AT+QCFG="bip/auth",1**
- › Activate PDP context: **AT+QIACT=1**

The PIN code of the eSIM is disabled by default.

The APN URL is **move.dataxs.mobi**

6 Establish connection

The most generic way to connect your cellular system to the Internet is to control data transmission from the host (MCU). The general connection process flow is:

- › Configure the modem via AT commands
- › Dial into the network with ATD*99#
- › Hand over to PPP (Point to Point Protocol) once a connection response has been received
 - Link: Establish a link between the modem and the RAC, where the Link Control Protocol (LCP) is used for negotiation
 - Authentication: If enabled, this phase is used to mutually authenticate both sides via CHAP (Challenge-Handshake Authentication Protocol) or similar
 - A basic connection exists and it is now handed over to higher levels, usually to establish the IP service via the IPCP (Internet Protocol Control Protocol)

7 Now you are ready to manage your eSIM!

The eSIMs contained in the OPTIGA™ Connect IoT sample kit are valid for 6 months starting from the activation date. To activate these eSIMs:

- › Please send an email to optigaconnect@tatacommunications.com with the subject [Kit Registration] and containing company name, user ID (or email address) and kit ID#
- › You'll receive a confirmation email (within max. 3 days) with your user ID and password which will grant you access to the eSIM platform **portal.tatacommunications.com**
- › Activate the eSIM(s) selected for your device(s) on the Tata portal using the respective **eID** printed on the package of the eSIM (VQFN8, plastic card) and also listed in the kit
- › Restart your device(s) to finalize the activation
- › You are now connected.