

## - White Paper

This article deals with the software functionality and reliability of Communication Manager (CM) build in the Tosibox product. The purpose of the CM is to ensure reliable and efficient communication scheme over the wireless (2G/3G/4G) cellular modem and cellular network.

As a background, the Tosibox product is also intended for the use where high degree of reliability is required like in the process industry, machinery and security business sectors. The Tosibox product is designed in that perspective rather than targeting consumer electronic markets where the key driver is low retailer price. It has been proven that the demand for the reliable wireless communication exists in the market.

Currently most of available wireless cellular routers hang occasionally for many and any reason. That is not acceptable for professional usage. There are three possible sources for the hanging situation and several mechanisms. The three sources are: router, modem or cellular network (i.e. base station). In addition, the hanging can be caused by many reasons e.g. mismatch in the functionality between the router, the modem and the cellular network to deal with the unexpected situation(s).

The Tosibox product has taken above mentioned consideration into account while building up the product software. The reliability and efficiency is built in the Tosibox in the manner of incorporating communication management functionality. As mentioned earlier, it is called Communication Manager. The CM consists of three major functionalities as follows:

1. Error Detection
2. Error Recovery
3. Diagnostics

**Error Detection:** It is designed to detect all unexpected – erroneous – situations in the communication.

**Error Recovery:** It is designed to recover the communication once the communication has been detected to be fully or partially degraded for any reason.

**Diagnostics:** It is designed to diagnose the communication efficiency and flawlessness.

As a summary, it has been proven that the reliability and efficiency of communication in the Tosibox product is in the feasible level for its intended usage. For that reason only the Tosibox specified 3<sup>rd</sup> party modems are required to be used in conjunction with Tosibox products.