

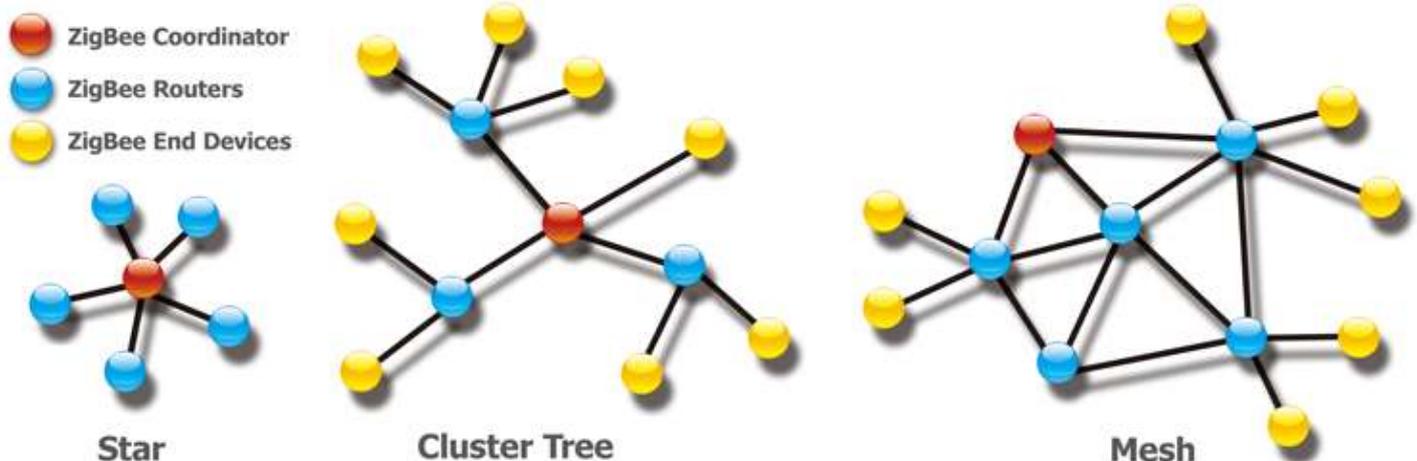
What is ZigBee?

Introduction

ZigBee is a specification based on the IEEE 802.15.4 standard for wireless personal area networks (WPANs). ZigBee operates in the ISM radio bands, and it defines a general-purpose, inexpensive, self-organizing, mesh network for industrial control, medical data collection, smoke and intruder warning, building automation and home automation, etc. There are three different types of ZigBee devices in a ZigBee network:

- **Full function device – ZigBee Coordinator (Master):**
Only one coordinator exists in each ZigBee network. Its function is to store information about the network and to determine the optimum transmission path between any two nodes of the network.
- **Full function device – ZigBee Router (Slave):**
Router acts as an intermediate node that always in the active mode. Its main function is to transfer and pass the data among the devices.
- **Reduced Function Device – ZigBee End Device (Slave):**
This device contains a minimal amount of functionality to enable it to talk to its parent node (either the coordinator or a router); it is normally in sleep mode and cannot relay data directly from other devices.

There are three topologies defined in the ZigBee standard: Mesh, Star and Cluster Tree.



ZigBee network uses a basic master-slave configuration that is suited to the dynamic mesh networks of many infrequently used devices that talk via small data packets. Up to 256 nodes are allowed.



ZT-USBC USB to ZigBee Converter

The ZT-USB series modules are small-sized wireless ZigBee converters based on the IEEE802.15.4 standard that allow USB interface to be converted to a personal area ZigBee network. The typical transmission of ICP DAS ZT-USB series ZigBee products is 60 meters (LOS, line of sight), with a transmission frequency range of between 2.405 GHz and 2.48 GHz, separated into 5 MHz sectors, providing 16 channels and 16384 PAN IDs. ZT series is not only a long distance wireless converter but also can act a ZigBee router to extend the transmission range and improve the quality of wireless signal.

ZT-USB series products are specification for a suite of high level communication protocols using small, low-power digital radios module, which are fitted the ZigBee 2007 (ZigBee Pro) of ZigBee Alliance. In the ZigBee network, it is only allowed one ZigBee Host and called "ZigBee Coordinator", ZT-USBC is used to initialize and manager the routing. In addition, One ZigBee network are able to manager 255 ZigBee router and responsible for receiving or bypassing data from parent or child node.

IZTCONFIG

"iztconfig" is used to configure the ZigBee network adapter interfaces. It is usually only needed when debugging or when system tuning is needed. If no arguments are given, iztconfig displays the status of the default interfaces. If a single interface argument is given, it displays or configures the status of the given interface.

```
root@ubuntu: /home
Usage: ./iztconfig [OPTION] [VALUE] ...
ZT-USBC Utility Options:
-d dev          Specify the device node of the ZigBee module
                (default is ttyUSB5)
-c RF Channel   Specify the RF Channel of ZigBee
-p PAN ID       Specify the PAN ID of ZigBee
-e Encrypt      Specify the Encrypt method (0:Disable, 1:AES128)
-s Num          Specify the Number of Router
-n Node ID      Specify the Node ID of the ZigBee module
-b baudrate     Specify the baudrate of com port (0:2400, 1:4800,
                2:9600, 3:19200, 4:38400 5:57600, 6:76800, 7:115200(default))
-f format       Specify the data format of com port
                (0:n81(default), 1:e81, 2:o81)
-j baudrate     Specify the new baudrate of the ZigBee module (0:2400, 1:4800,
                2:9600, 3:19200, 4:38400 5:57600, 6:76800, 7:115200(default))
-k format       Specify the new data format of the ZigBee module
                (0:n81(default), 1:e81, 2:o81)
-w RF Power     Specify the RF Power of the ZigBee module
-z Module Type  Specify the Rule of the ZigBee module
                (0:Coordination->Master, 1:Router->Slave)
-r             Reboot this ZigBee module
-h             Display this help and exit
```



Applications

