API of Application

This document defines the simple programming interface of TRYCOM serial network controllers via UDP packets. This interface was primarily designed for maintenance purpose, and is not recommended to be part of system functions, due to the unreliable nature of UDP packets.

All information depicted in this document are 'as is'; Metavert makes no warranty of the functionality and the compatibility in future releases.

Please note the byte order shown below is 'Big Indian' (Network Order, MSB first), not 'Little Indian' (Intel order, LSB first) which commonly used in PCs.

1. Constants and Packet Format

```
// Port number for UDP socket
#define NMP_PORT 36
// Magic number in packet header
#define NMP_MAGIC 0x4321
// Command IDs for getting controller information
#define NMP_LIST 12345
#define NMP_GETID 12344
// Command IDs for setting controller parameters
#define NMP_SET_IP 12346
#define NMP_SET_MASK 12347
#define NMP_SET_PORT 12340
#define NMP_SET_DHCP 12341
// Generic UDP packet format, 20 bytes
typedef struct
{   short  Magic;          // Magic number = 0x4321
    short  Code;           // Op code
    char   IP[4];          // IP address
    char   Data[12];       // Data for various command
} PKT_NMP;
```

2. Get device List (broadcast packet)

```
typedef struct
{   short  Magic;          // Magic number = 0x4321
    short  Code;           // Op code = NMP_LIST
    char   IP[4];          // IP address
    char   Mask[4];        // Subnet mask
    char   MAC[6];         // MAC address
    short  DeviceId;       // Device ID
} PKT_LIST;
```

Set fields 'Magic' and 'Code', fill other fields to zero, then broadcast the packet to port 36. Each eLink devices will respond to this packet by filling 'IP', 'Mask', 'MAC' and 'DeviceId' fields, then send back to sender.

3. Get User ID, Device Type (unicast packet)

```
typedef struct
{   short  Magic;          // Magic number = 0x4321
    short  Code;           // Op code = NMP_GETID
    char   IP[4];          // IP address
    char   Reserve[8];     // Reserved
    short  UserId;         // User ID
    short  DeviceType;     // Device Type
} PKT_GETID;
```

Set fields 'Magic' and 'Code', fill other fields to zero,
then send this packet to port 36 of specified devices. eLink devices
will respond to this packet by filling 'UserId' and 'DeviceId'
fields, then send back to sender.

4. Set IP Address (unicast packet)

```
typedef struct
{   short  Magic;          // Magic number = 0x4321
    short  Code;           // Op code = NMP_SET_IP
    char   IP[4];          // New IP address
    char   Reserve[2];     // Set to zero
    char   MAC[6];         // MAC address of device
    char   Reserve[2];     // Set to zero
} PKT_SET_IP;
```

Set fields 'Magic', 'Code', 'IP' and 'MAC', fill other fields to zero,
then send this packet to port 36 of specified devices. The 'MAC' field
is used to further identify target device for preventing accidental
damage. To get MAC address of target device, use ARP or NMP_LIST packet
to retrieve required information. If the packet is sent to specified
device without errors, it simply sets the new parameter and reboot,
no acknowledge packet will be made.

5. Set Subnet Mask, Socket Port, DHCP client (unicat packet)

```
// Set subnet mask
typedef struct
{   short  Magic;          // Magic number = 0x4321
    short  Code;           // Op code = NMP_SET_MASK
    char   IP[4];          // IP address of device
    char   Mask[4];        // New subnet mask
    char   MAC[6];         // MAC address of device
    char   Reserve[2];     // Set to zero
} PKT_SET_MASK;

// Set socket ports
typedef struct
{   short  Magic;          // Magic number = 0x4321
    short  Code;           // Op code = NMP_SET_PORT
    char   IP[4];          // IP address of device
    short  DioPort;        // New digital I/O socket port
    short  SioPort;        // New serial I/O socket port
    char   MAC[6];         // MAC address of device
    char   Reserve[2];     // Set to zero
} PKT_SET_PORT;
```

// Set DHCP

```
typedef struct
{   short  Magic;          // Magic number = 0x4321
    short  Code;           // Op code = NMP_SET_DHCP
    char   IP[4];          // IP address of device
    char   DHCP;           // New DHCP state 0=disable, 1=enable
    char   Reserve[3];     // Set to zero
    char   MAC[6];         // MAC address of device
    char   Reserve[2];     // Set to zero
} PKT_SET_DHCP;
```

Set fields 'Magic', 'Code', 'IP', 'MAC' and required parameters, fill other fields to zero, then send this packet to port 36 of specified device. The 'IP' and 'MAC' fields are used to further identify target device for preventing accidental damage. To get MAC address of target device, use ARP or NMP_LIST packet to retrieve required information. If the packet is sent to specified device without errors, it simply sets the parameters and reboot, no acknowledge packet will be sent.