

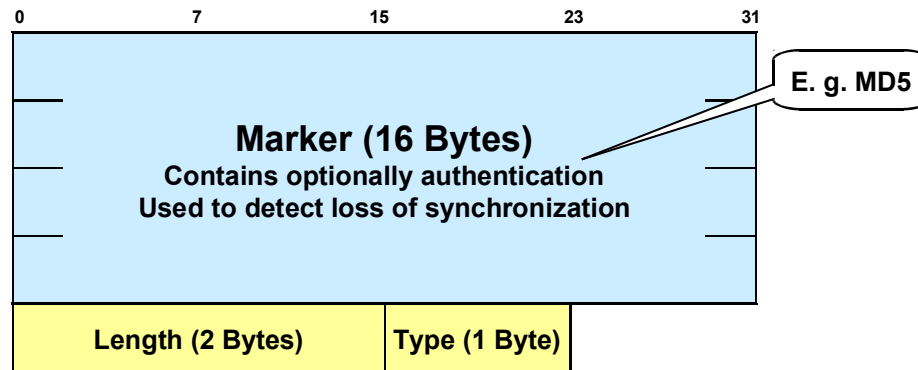
BGP

Message Structure

BGP Header Format



FYI



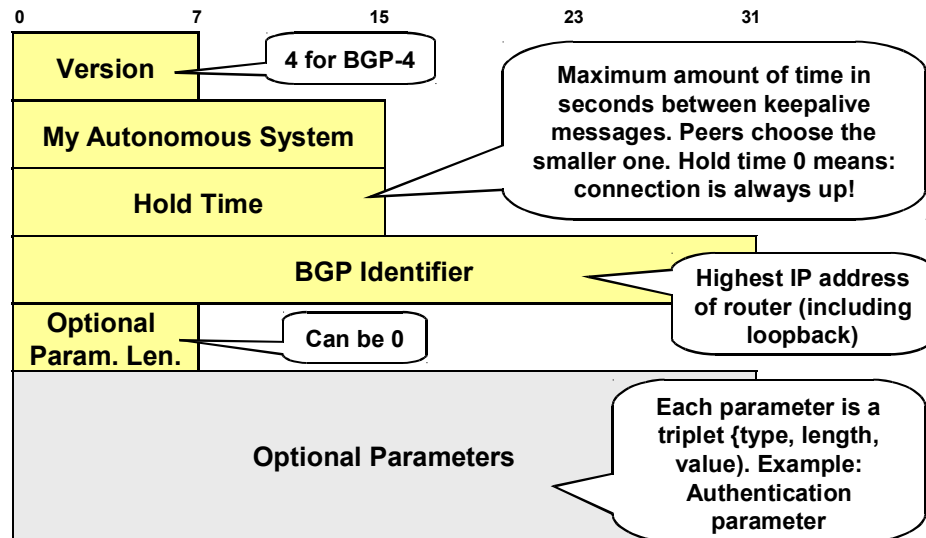
The smallest BGP message is **19 Bytes**
(no data field, e. g. keepalive)
The maximum length is **4,096 Bytes**
(also including header)

This is the basic BGP header format. This and the following slides marked with a "FYI" at the upper-left of the slide are only given "for your interest". It is usually not necessary to know this details by heart—unless you plan to go deeper in BGP.

Open Message



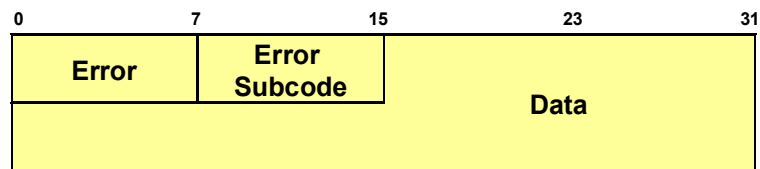
FYI



Notification Message



FYI



Notification is always sent when an error is detected.

After that, the connection is closed.

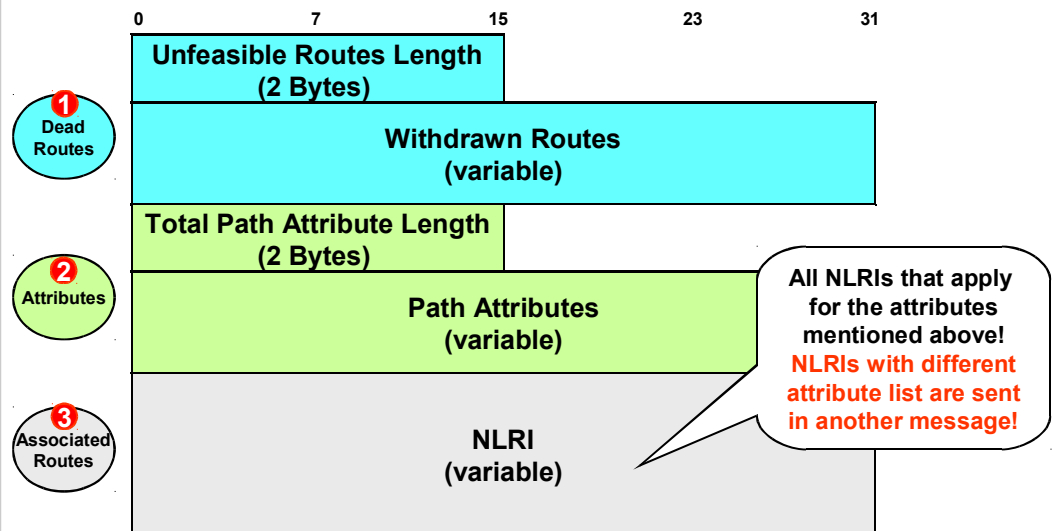
Keepalive Message



- Consists of header only (19 bytes)
- **Must be sent before hold time expires**
- Recommended keepalive rate = $\frac{1}{3}$ of hold time
- Not necessary if update message is sent

Keepalive messages are sent periodically, by default at 60 seconds interval.

The Update Message



The picture above shows the most important message within BGP: the update. Note that the update message consists of three parts. The first part contains all unfeasible routes (also known as "withdrawn" routes). The second part contains a consistent set of attributes for the following regular routes listed in the third part of the message.

Note that another update message has to be sent if a route (NLRI) should be advertised with a different set of attributes.

Withdrawn Routes



FYI

Length in bits of the IP address prefix.
A length of zero indicates a prefix that
matches all IP addresses.

Length
(1 Byte)

Prefix
(Variable)

Padded for byte-
alignment (padding
bits irrelevant)

...How destinations are specified within an update