
wire-protocol Documentation

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Android Debug Bridge (ADB) Wire Protocol.

1.1 adbwp.consts

Contains constant values used by the protocol.

`adbwp.consts.VERSION = 16777216`
Protocol version.

`adbwp.consts.MAXDATA = 262144`
Maximum message body size.

`adbwp.consts.CONNECT_AUTH_MAXDATA = 4096`
Older ADB version max data size limit; required max for CONNECT and AUTH messages.

`adbwp.consts.MESSAGE_SIZE = 24`
Size of a serialized ADB message in bytes.

`adbwp.consts.COMMAND_MASK = 4294967295`
Bitmask applied to the “magic” value of ADB messages.

1.2 adbwp.enums

Contains enumeration types used by the protocol.

class `adbwp.enums.Command` (*value*)
Enumeration for command types used by the ADB protocol.

class `adbwp.enums.CommandResponse` (*value*)
Enumeration for response message types from ADB connection requests.

class `adbwp.enums.AuthType` (*value*)
Enumeration for authentication types used by the ADB protocol.

class `adbwp.enums.SystemType` (*value*)
Enumeration for “systemtype” values used by the ADB protocol for the “system-identity-string” value in a CONNECT message.

1.3 adbwp.exceptions

Contains exception types used across the package.

exception `adbwp.exceptions.WireProtocolError`

Base exception for all ADB wire protocol related errors.

with_traceback ()

Exception.with_traceback(tb) – set self.__traceback__ to tb and return self.

exception `adbwp.exceptions.PackError`

Exception raised when unable to pack/serialize a model into `bytes`.

with_traceback ()

Exception.with_traceback(tb) – set self.__traceback__ to tb and return self.

exception `adbwp.exceptions.UnpackError`

Exception raised when unable to unpack/deserialize `bytes` into a model.

with_traceback ()

Exception.with_traceback(tb) – set self.__traceback__ to tb and return self.

exception `adbwp.exceptions.ChecksumError`

Exception raised when the computed checksum of a data payload does not match the value in the header.

with_traceback ()

Exception.with_traceback(tb) – set self.__traceback__ to tb and return self.

1.4 adbwp.header

Object representation of a message header.

class `adbwp.header.Header` (*command, arg0, arg1, data_length, data_checksum, magic*)

Represents the header of an ADB protocol message.

A header is 24 bytes consisting of 6 32-bit words in little-endian format.

Create new instance of Header(*command, arg0, arg1, data_length, data_checksum, magic*)

property `connect`

Indicates whether or not this header represents a connect message.

Returns Bool indicating if it is a connect message or not.

Return type `bool`

property `auth`

Indicates whether or not this header represents an auth message.

Returns Bool indicating if it is an auth message or not.

Type `bool`

property `open`

Indicates whether or not this header represents a open message.

Returns Bool indicating if it is a open message or not.

Return type `bool`

property `ready`

Indicates whether or not this header represents a ready message.

Returns Bool indicating if it is a ready message or not.

Return type `bool`

property write

Indicates whether or not this header represents a write message.

Returns Bool indicating if it is a write message or not.

Return type `bool`

property close

Indicates whether or not this header represents a close message.

Returns Bool indicating if it is a close message or not.

Return type `bool`

property sync

Indicates whether or not this header represents a sync message.

Returns Bool indicating if it is a sync message or not.

Return type `bool`

property okay

Indicates whether or not this header represents an okay response.

Returns Bool indicating if it is an okay response or not.

Return type `bool`

property fail

Indicates whether or not this header represents a fail response.

Returns Bool indicating if it is a fail response or not.

Return type `bool`

property arg0

Alias for field number 1

property arg1

Alias for field number 2

property command

Alias for field number 0

count (*value*, /)

Return number of occurrences of value.

property data_checksum

Alias for field number 4

property data_length

Alias for field number 3

index (*value*, *start*=0, *stop*=9223372036854775807, /)

Return first index of value.

Raises ValueError if the value is not present.

property magic

Alias for field number 5

```
adbwp.header.new(command: Union[int, adbwp.enums.Command], arg0: int = 0, arg1: int = 0, data_length: int = 0, data_checksum: int = 0, magic: int = 0) → adbwp.header.Header
```

Create a new *Header* instance with optional default values.

Parameters

- **command** (*Command* or *int*) – Command identifier
- **arg0** (*int*) – (Optional) First argument of the command
- **arg1** (*int*) – (Optional) Second argument of the command
- **data_length** (*int*) – (Optional) Length of the payload
- **data_checksum** (*int*) – (Optional) Computed checksum of the payload
- **magic** (*int*) – (Optional) “Magic” XOR of the command

Returns Header instance created from values

Return type *Header*

```
adbwp.header.to_bytes(header: adbwp.header.Header) → bytes
```

Create a *bytes* from the given *Header*.

Parameters **header** (*Header*) – Message header

Returns Header represented as bytes

Return type *bytes*

Raises *PackError* – when unable to pack instance into 6 bytes

```
adbwp.header.from_bytes(header: bytes) → adbwp.header.Header
```

Create a *Header* from the given *bytes*.

Parameters **header** (*bytes*) – Message header in bytes

Returns Bytes converted to a header

Return type *Header*

Raises *UnpackError* – When unable to unpack instance from bytes

1.5 adbwp.hints

Contains type hint definitions used across modules in this package.

```
adbwp.hints.Bytes  
    alias of bytes
```

```
adbwp.hints.Bool  
    alias of bool
```

```
adbwp.hints.Int  
    alias of int
```

```
adbwp.hints.Str  
    alias of str
```

```
adbwp.hints.Command  
    Type hint that defines multiple types that represent a command.  
    alias of Union[int, adbwp.enums.Command]
```

adbwp.hints.SystemType

Type hint that defines multiple types that can represent a system type used in a connect message.

alias of Union[str, adbwp.enums.SystemType]

adbwp.hints.Buffer

Type hint that defines multiple types that can represent a collection of bytes that can be used to create model types.

alias of Union[bytes, bytearray, str, memoryview]

1.6 adbwp.message

Object representation of a message.

class adbwp.message.**Message** (*header, data*)

Represents an entire ADB protocol message.

A message consists of a 24-byte header followed by an optional data payload.

Create new instance of Message(header, data)

count (*value, /*)

Return number of occurrences of value.

property data

Alias for field number 1

property header

Alias for field number 0

index (*value, start=0, stop=9223372036854775807, /*)

Return first index of value.

Raises ValueError if the value is not present.

adbwp.message.**new** (*command: Union[int, adbwp.enums.Command], arg0: int = 0, arg1: int = 0, data:*

Union[bytes, bytearray, str, memoryview] = b") → adbwp.message.Message

Create a new Message instance with optional default values.

Parameters

- **command** (*Command* or *int*) – Command identifier
- **arg0** (*int*) – (Optional) First argument of the command
- **arg1** (*int*) – (Optional) Second argument of the command
- **data** (*bytes, bytearray, str, or memoryview*) – (Optional) Message payload

Returns Message instance from given values

Return type Message

Raises **ValueError** – When data payload is greater than *MAXDATA*

adbwp.message.**from_header** (*header: adbwp.header.Header, data: Union[bytes, bytearray, str, mem-*

oryview] = b") → adbwp.message.Message

Create a new Message instance from an existing Header.

Parameters

- **header** (*Header*) – Message header
- **data** (*bytes, bytearray, str, or memoryview*) – (Optional) Message payload

Returns Message instance from given values

Return type *Message*

Raises

- **ValueError** – When data payload is greater than *MAXDATA*
- **ChecksumError** – When data payload checksum doesn't match header checksum

`adbwp.message.connect` (*serial: str, banner: str, system_type: Union[str, adbwp.enums.SystemType] = <SystemType.HOST: 'host'>*) → *adbwp.message.Message*

Create a *Message* instance that represents a connect message.

Parameters

- **serial** (*str*) – Unique identifier
- **banner** (*str*) – Human readable version/identifier string
- **system_type** (*SystemType* or *str*) – System type creating the message

Returns Message used to connect to a remote system

Return type *Message*

Raises **ValueError** – When data payload is greater than *CONNECT_AUTH_MAXDATA*

`adbwp.message.auth_signature` (*signature: bytes*) → *adbwp.message.Message*

Create a *Message* instance that represents a signature authentication message.

Parameters **signature** (*bytes*) – Signed data payload

Returns Message used to verify key pair

Return type *Message*

Raises **ValueError** – When data payload is greater than *CONNECT_AUTH_MAXDATA*

`adbwp.message.auth_rsa_public_key` (*public_key: bytes*) → *adbwp.message.Message*

Create a *Message* instance that represents a RSA public key authentication message.

Parameters **public_key** (*bytes*) – Public key for remote system to conditionally accept

Returns Message used to share public key

Return type *Message*

Raises **ValueError** – When data payload is greater than *CONNECT_AUTH_MAXDATA*

`adbwp.message.open` (*local_id: int, destination: str*) → *adbwp.message.Message*

Create a *Message* instance that represents an open message.

Parameters

- **local_id** (*int*) – Stream id on remote system to connect with
- **destination** (*str*) – Stream destination

Returns Message used to open a stream by id on a remote system

Return type *Message*

Raises

- **ValueError** – When local id is zero
- **ValueError** – When data payload is greater than *MAXDATA*

`adbwp.message.ready` (*local_id: int, remote_id: int*) → *adbwp.message.Message*
 Create a *Message* instance that represents a ready message.

Parameters

- **local_id** (*int*) – Identifier for the stream on the local end
- **remote_id** (*int*) – Identifier for the stream on the remote system

Returns Message used to inform remote system it's ready for write messages

Return type *Message*

Raises

- **ValueError** – When local id is zero
- **ValueError** – When remote id is zero
- **ValueError** – When data payload is greater than *MAXDATA*

`adbwp.message.write` (*local_id: int, remote_id: int, data: Union[bytes, bytearray, str, memoryview]*)
 → *adbwp.message.Message*

Create a *Message* instance that represents a write message.

Parameters

- **local_id** (*int*) – Identifier for the stream on the local end
- **remote_id** (*int*) – Identifier for the stream on the remote system
- **data** (*bytes, bytearray, str, or memoryview*) – Data payload sent to the stream

Returns Message used to write data to remote stream

Return type *Message*

Raises

- **ValueError** – When data payload is empty
- **ValueError** – When data payload is greater than *MAXDATA*

`adbwp.message.close` (*local_id: int, remote_id: int*) → *adbwp.message.Message*
 Create a *Message* instance that represents a close message.

Parameters

- **local_id** (*int*) – Identifier for the stream on the local end
- **remote_id** (*int*) – Identifier for the stream on the remote system

Returns Message used to inform the remote system of stream closing

Return type *Message*

Raises

- **ValueError** – When id is zero
- **ValueError** – When remote id is zero
- **ValueError** – When data payload is greater than *MAXDATA*

1.7 adbwp.payload

Contains functionality for message data payloads.

`adbwp.payload.checksum` (*data: Union[bytes, bytearray, str, memoryview]*) → int
Compute the checksum value of a header that uses the given data payload.

Parameters `data` (`bytes`, `bytearray`, `str`, or `memoryview`) – Data payload

Returns Data payload checksum

Return type `int`

`adbwp.payload.null_terminate` (*data: Union[bytes, bytearray, str, memoryview]*) → bytes
Null terminate the given data payload.

Parameters `data` (`bytes`, `bytearray`, `str`, or `memoryview`) – Data payload

Returns Data payload ending with a zero byte.

Return type `bytes`

`adbwp.payload.as_bytes` (*data: Union[bytes, bytearray, str, memoryview]*, *encoding: str = 'utf-8'*, *errors: str = 'strict'*) → bytes
Ensure the given data payload is a `bytes` instance.

Parameters

- **data** (`bytes`, `bytearray`, `str`, or `memoryview`) – Data payload
- **encoding** (`str`) – (Optional) Encoding if data payload is a `str`
- **errors** (`str`) – (Optional) How to handle encoding errors

Returns Data payload as bytes

Return type `bytes`

Raises `ValueError` – When data is not one of the supported types

`adbwp.payload.system_identity_string` (*system_type: Union[str, adbwp.enums.SystemType]*,
serial: str, banner: str)

Compute the system identity string data payload.

Parameters

- **system_type** (`SystemType` or `str`) – System type creating the message
- **serial** (`str`) – Unique identifier
- **banner** (`str`) – Human readable version/identifier string

Returns System identity string payload for connect messages

Return type `str`

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