



PRMSG Enhancement

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Buffer Size Negotiation

- Both Linux and OpenAMP hard code RX/TX buffer size to 512B
 - https://github.com/OpenAMP/open-amp/blob/master/lib/include/openamp/rpmsg_virtio.h#L25-L27
 - https://github.com/torvalds/linux/blob/master/drivers/rpmsg/virtio_rpmsg_bus.c#L132

- Suggestion for improvement

- RX and TX can have different buffer size
- Linux query the buffer size in the initial phase
- Platform code decide the best buffer size
- Need work with old kernel or firmware

- Key idea

- Extend the resource table to carry the buffer size info
- Read the buffer size info through config space API
- Add new feature bit VIRTIO_RPMSG_F_BUFSZ

- Patch

- OpenAMP: <https://github.com/OpenAMP/open-amp/pull/155>
- Linux: <https://patchwork.kernel.org/cover/10790823/>

```
/* struct fw_rsc_config -- configuration space declaration
 * @txbuf_size: the tx buffer size
 * @rxbuf_size: the rx buffer size
 * @reserved: reserved (must be zero)
 *
 * This structure immediately follow fw_rsc_vdev to
 * provide the config info.
 */
struct fw_rsc_config {
    → /* The tx/rx individual buffer size */
    → uint32_t txbuf_size;
    → uint32_t rxbuf_size;
    → uint32_t reserved[14]; /* Reserve */
    → /* Put the customize config here */
};
```



Two Phase Creation Handshake

- **Current**
 - OpenAMP allocate the local port number
 - Send the channel name and port number to Linux(RPMSG_NS_CREATE)
 - Linux create a new rpmsg_device and associate with a new local port number
- **Problem**
 - OpenAMP can't send the first message without Linux port number
- **Solution**
 - Linux send back it's local port number(RPMSG_NS_ACK)
 - Guard by VIRTIO_RPMSG_F_ACK for compatibility
- **Patch**
 - OpenAMP: <https://github.com/OpenAMP/open-amp/pull/160>
 - Linux: <https://patchwork.kernel.org/patch/10807413>