Specification of the storage-related journal entries

This is a specification of the *journal* entries reporting events and actions related to the file systems and storage. For some background and rationale please read the two blog posts published in Spring 2017: Reporting And Monitoring Storage Events and Reporting And Monitoring Storage Actions.

Dictionary

device: a block device

subsystem: a storage subsystem/technology like LVM, MD RAID, btrfs, SMART,...

Specifications

There are two kinds of entries (each detailed in the respective blog post):

1. device discoveries, failures or recoveries, i.e. *state changes*,

2. *actions* performed on devices.

1. State changes

All the fields described below are required unless explicitly marked as **optional**.

MESSAGE_ID Must have the value `3183267b90074a4595e91daef0e01462`. This identifies the entry as a storage state change report.

DEVICE Complete name of the device that changed state.

Usually this is the path of one of the device's symlinks without the `/dev` prefix (e.g. `vgname/lvname` for an LVM LV, or `md/raidname` for an MD RAID device with a name). However, some devices don't have pretty/persistent names in which case the name of the device file in `/dev/` should be used.

See the note about messages from kernel describing an exception to the above.

DEVICE_ID (optional) Unique and persistent identifier of the device. Either UUID, WWN/WWID, SERIAL or some other similar value. **If some kind of such an identifier exists, it must be specified.** It is only optional for devices that don't have any such identifier.

STATE The new state of the device. If possible, the value should be one of the following well-known states: `discovered`, `initialized`, `failing`, `degraded`, `failed`, `missing`. If none of those are applicable, the value should describe the new state of the device, preferably with a single word.

SOURCE The subsystem reporting the state change.

SOURCE_MAN (optional) Manual page providing extra information about the *SOURCE* in the MAN_NAME(MAN_SECTION) format, for example smartd(8).

DETAILS Extra information about what happened and/or about the new state of the device. For example if a device is failing this should describe the symptoms like too many sector reallocations or similar.

PRIORITY An integer priority value between 0 (emergency) and 7 (debug) formatted as a decimal string. This field is compatible with syslog's priority concept and describes the importance of the state change.

PRIORITY_DESC A one-word description of *PRIORITY*. Possible values are: emergency, alert, critical, error, warning, notice, info, debug.

MESSAGE An arbitrary free-form message describing what happened.

> **Note**
>
> If the journal entry comes from the kernel, the *_KERNEL_* prefix is added to some of the above fields, namely: *DEVICE*, *DEVICE_ID*, *SOURCE*, *SOURCE_MAN*, *DETAILS*, *PRIORITY_DESC* due to how journald handles structured logging from kernel.
>
> Moreover, the *_KERNEL_DEVICE* field is very different, because kernel uses a special form of the device identifier of the form +SUBSYSTEM:SYSNAME, for example +scsi:0:0:0:0 for the first SATA/SCSI disk in the system which is usually known as sda.

2. Actions

TBD