Overview

The Dell Systems Management Base Driver provides a sysfs interface for systems management software such as Dell OpenManage to perform system management interrupts and host control actions (system power cycle or power off after OS shutdown) on certain Dell systems.

Dell OpenManage requires this driver on the following Dell PowerEdge systems: 300, 1300, 1400, 400SC, 500SC, 1500SC, 1550, 600SC, 1600SC, 650, 1655MC, 700, and 750. Other Dell software such as the open source libsmbios project is expected to make use of this driver, and it may include the use of this driver on other Dell systems.

The Dell libsmbios project aims towards providing access to as much BIOS information as possible. See http://linux.dell.com/libsmbios/main/ for more information about the libsmbios project.

System Management Interrupt

On some Dell systems, systems management software must access certain management information via a system management interrupt (SMI). The SMI data buffer must reside in 32-bit address space, and the physical address of the buffer is required for the SMI. The driver maintains the memory required for the SMI and provides a way for the application to generate the SMI.
The driver creates the following sysfs entries for systems management software to perform these system management interrupts:

/sys/devices/platform/dcdbas/smi_data
/sys/devices/platform/dcdbas/smi_data_buf_phys_addr
/sys/devices/platform/dcdbas/smi_data_buf_size
/sys/devices/platform/dcdbas/smi_request

Systems management software must perform the following steps to execute a SMI using this driver:

1) Lock smi_data.
2) Write system management command to smi_data.
3) Write "1" to smi_request to generate a calling interface SMI or "2" to generate a raw SMI.
4) Read system management command response from smi_data.
5) Unlock smi_data.

Host Control Action

Dell OpenManage supports a host control feature that allows the administrator to perform a power cycle or power off of the system after the OS has finished shutting down. On some Dell systems, this host control feature requires that a driver perform a SMI after the OS has finished shutting down.

The driver creates the following sysfs entries for systems management software to schedule the driver to perform a power cycle or power off host control action after the system has finished shutting down:

/sys/devices/platform/dcdbas/host_control_action

/sys/devices/platform/dcdbas/host_control_smi_type
/sys/devices/platform/dcdbas/host_control_on_shutdown

Dell OpenManage performs the following steps to execute a power cycle or power off host control action using this driver:

1) Write host control action to be performed to host_control_action.
2) Write type of SMI that driver needs to perform to host_control_smi_type.
3) Write "1" to host_control_on_shutdown to enable host control action.
4) Initiate OS shutdown.
   (Driver will perform host control SMI when it is notified that the OS has finished shutting down.)

Host Control SMI Type

The following table shows the value to write to host_control_smi_type to perform a power cycle or power off host control action:

PowerEdge System	Host Control SMI Type
300	HC_SMITYPE_TYPE1
1300	HC_SMITYPE_TYPE1
1400	HC_SMITYPE_TYPE2
500SC	HC_SMITYPE_TYPE2
1500SC	HC_SMITYPE_TYPE2
1550	HC_SMITYPE_TYPE2
600SC	HC_SMITYPE_TYPE2
1600SC	HC_SMITYPE_TYPE2
650	HC_SMITYPE_TYPE2
1655MC	HC_SMITYPE_TYPE2
700	HC_SMITYPE_TYPE3
750	HC_SMITYPE_TYPE3