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new/usr/src/cmd/hal/hald/solaris/devinfo_storage.c
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*****
52155 Sun May 4 19:18:02 2014
new/usr/src/cmd/hal/hald/solaris/devinfo_storage.c
4846 HAL partition names don't match real partition names
*****
1 / ****
2 *
3 * devinfo_storage.c : storage devices
4 *
5 * Copyright (c) 2006, 2010, Oracle and/or its affiliates. All rights reserved.
6 * Copyright 2013 Garrett D'Amore <garrett@damore.org>
7 * Copyright 2014 Andrew Stormont.
8 #endif /* ! codereview */
9 *
10 * Licensed under the Academic Free License version 2.1
11 *
12 ****
14 #ifdef HAVE_CONFIG_H
15 # include <config.h>
16 #endif

18 #include <stdio.h>
19 #include <string.h>
20 #include <strings.h>
21 #include <ctype.h>
22 #include <libdevinfo.h>
23 #include <sys/types.h>
24 #include <sys/mkdev.h>
25 #include <sys/stat.h>
26 #include <sys/mntent.h>
27 #include <sys/mnttab.h>

29 #include "../osspec.h"
30 #include "../logger.h"
31 #include "../hald.h"
32 #include "../hald_dbus.h"
33 #include "../device_info.h"
34 #include "../util.h"
35 #include "../hald_runner.h"
36 #include "hotplug.h"
37 #include "devinfo.h"
38 #include "devinfo_misc.h"
39 #include "devinfo_storage.h"
40 #include "osspec_solaris.h"

42 #ifdef sparc
43 #define WHOLE_DISK      "s2"
44 #else
45 #define WHOLE_DISK      "p0"
46 #endif

48 /* some devices, especially CDROMs, may take a while to be probed (values in ms)
49 #define DEVINFO_PROBE_STORAGE_TIMEOUT    60000
50 #define DEVINFO_PROBE_VOLUME_TIMEOUT     60000

52 typedef struct devinfo_storage_minor {
53     char      *devpath;
54     char      *devlink;
55     char      *slice;
56     dev_t     dev;
57     int       dosnum; /* dos disk number or -1 */
58 } devinfo_storage_minor_t;

60 HalDevice *devinfo_ide_add(HalDevice *parent, di_node_t node, char *devfs_path,
61 static HalDevice *devinfo_ide_host_add(HalDevice *parent, di_node_t node, char *
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63 static HalDevice *devinfo_ide_storage_add(HalDevice *parent, di_node_t node, cha
64 HalDevice *devinfo_scsi_add(HalDevice *parent, di_node_t node, char *devfs_path,
65 static HalDevice *devinfo_scsi_storage_add(HalDevice *parent, di_node_t node, ch
66 HalDevice *devinfo_blkdev_add(HalDevice *parent, di_node_t node, char *devfs_pat
67 static HalDevice *devinfo_blkdev_storage_add(HalDevice *parent, di_node_t node,
68 HalDevice *devinfo_floppy_add(HalDevice *parent, di_node_t node, char *devfs_pat
69 static void devinfo_floppy_add_volume(HalDevice *parent, di_node_t node);
70 static HalDevice *devinfo_lofi_add(HalDevice *parent, di_node_t node, char *devf
71 static void devinfo_lofi_add_minor(HalDevice *parent, di_node_t node, char *mino
72 static void devinfo_storage_minors(HalDevice *parent, di_node_t node, gchar *dev
73 static struct devinfo_storage_minor *devinfo_storage_new_minor(char *maindev_pat
74     char *devlink, dev_t dev, int dosnum);
75 static void devinfo_storage_free_minor(struct devinfo_storage_minor *m);
76 HalDevice *devinfo_volume_add(HalDevice *parent, di_node_t node, devinfo_storage
77 static void devinfo_volume_preprobing_done(HalDevice *d, gpointer userdata1, gpo
78 static void devinfo_volume_hotplug_begin_add (HalDevice *d, HalDevice *parent, D
79 static void devinfo_storage_hotplug_begin_add (HalDevice *d, HalDevice *parent,
80 static void devinfo_storage_probing_done (HalDevice *d, guint32 exit_type, gint
81 const gchar *devinfo_volume_get_prober (HalDevice *d, int *timeout);
82 const gchar *devinfo_storage_get_prober (HalDevice *d, int *timeout);

84 static char *devinfo_scsi_dtype2str(int dtype);
85 static char *devinfo_volume_get_slice_name (char *devlink);
86 static gboolean dos_to_dev(char *path, char **devpath, int *partnum);
87 static gboolean is_dos_path(char *path, int *partnum);

89 static void devinfo_storage_set_nicknames (HalDevice *d);

91 DevinfoDevHandler devinfo_ide_handler = {
92     devinfo_ide_add,
93     NULL,
94     NULL,
95     NULL,
96     NULL,
97     NULL
98 },;
99 DevinfoDevHandler devinfo_scsi_handler = {
100     devinfo_scsi_add,
101     NULL,
102     NULL,
103     NULL,
104     NULL,
105     NULL
106 },;
107 DevinfoDevHandler devinfo_blkdev_handler = {
108     devinfo_blkdev_add,
109     NULL,
110     NULL,
111     NULL,
112     NULL,
113     NULL
114 },;
115 DevinfoDevHandler devinfo_floppy_handler = {
116     devinfo_floppy_add,
117     NULL,
118     NULL,
119     NULL,
120     NULL,
121     NULL
122 },;
123 DevinfoDevHandler devinfo_lofi_handler = {
124     devinfo_lofi_add,
125     NULL,
126     NULL,
127     NULL,
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128     NULL,
129     NULL
130 };
131 DevinfoDevHandler devinfo_storage_handler = {
132     NULL,
133     NULL,
134     devinfo_storage_hotplug_begin_add,
135     NULL,
136     devinfo_storage_probing_done,
137     devinfo_storage_get_prober
138 };
139 DevinfoDevHandler devinfo_volume_handler = {
140     NULL,
141     NULL,
142     devinfo_volume_hotplug_begin_add,
143     NULL,
144     NULL,
145     devinfo_volume_get_prober
146 };
148 /* IDE */

150 HalDevice *
151 devinfo_ide_add(HalDevice *parent, di_node_t node, char *devfs_path, char *device_type)
152 {
153     char    *s;
154
155     if ((device_type != NULL) && (strcmp(device_type, "ide") == 0)) {
156         return (devinfo_ide_host_add(parent, node, devfs_path));
157     }
158
159     if ((di_prop_lookup_strings (DDI_DEV_T_ANY, node, "class", &s) > 0) &&
160         (strcmp (s, "dada") == 0)) {
161         return (devinfo_ide_device_add(parent, node, devfs_path));
162     }
163
164     return (NULL);
165 }

167 static HalDevice *
168 devinfo_ide_host_add(HalDevice *parent, di_node_t node, char *devfs_path)
169 {
170     HalDevice *d;
171
172     d = hal_device_new ();
173
174     devinfo_set_default_properties (d, parent, node, devfs_path);
175     hal_device_property_set_string (d, "info.product", "IDE host controller");
176     hal_device_property_set_string (d, "info.subsystem", "ide_host");
177     hal_device_property_set_int (d, "ide_host.number", 0); /* XXX */
178
179     devinfo_add_enqueue (d, devfs_path, &devinfo_ide_handler);
180
181     return (d);
182 }

184 static HalDevice *
185 devinfo_ide_device_add(HalDevice *parent, di_node_t node, char *devfs_path)
186 {
187     HalDevice *d;
188
189     d = hal_device_new();
190
191     devinfo_set_default_properties (d, parent, node, devfs_path);
192     hal_device_property_set_string (parent, "info.product", "IDE device");
193     hal_device_property_set_string (parent, "info.subsystem", "ide");

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194     hal_device_property_set_int (parent, "ide.host", 0); /* XXX */
195     hal_device_property_set_int (parent, "ide.channel", 0);
196
197     devinfo_add_enqueue (d, devfs_path, &devinfo_ide_handler);
198
199     return (devinfo_ide_storage_add (d, node, devfs_path));
200 }

202 static HalDevice *
203 devinfo_ide_storage_add(HalDevice *parent, di_node_t node, char *devfs_path)
204 {
205     HalDevice *d;
206     char    *s;
207     int      i;
208     char    *driver_name;
209     char    udi[HAL_PATH_MAX];
210
211     if ((driver_name = di_driver_name (node)) == NULL) {
212         return (NULL);
213     }
214
215     d = hal_device_new ();
216
217     devinfo_set_default_properties (d, parent, node, devfs_path);
218     hal_device_property_set_string (d, "info.category", "storage");
219
220     hal_util_compute_udt (hal_get_gdl (), udi, sizeof (udi),
221                           "%s/%s%d", hal_device_get_udt (parent), driver_name, di_instance);
222     hal_device_set_udt (d, udi);
223     hal_device_property_set_string (d, "info.udt", udi);
224     PROP_STR(d, node, s, "devid", "info.product");
225
226     hal_device_add_capability (d, "storage");
227     hal_device_property_set_string (d, "storage.bus", "ide");
228     hal_device_property_set_int (d, "storage.lun", 0);
229     hal_device_property_set_string (d, "storage.drive_type", "disk");
230
231     PROP_BOOL(d, node, i, "hotpluggable", "storage.hotpluggable");
232     PROP_BOOL(d, node, i, "removable-media", "storage.removable");
233
234     hal_device_property_set_bool (d, "storage.media_check_enabled", FALSE);
235
236     /* XXX */
237     hal_device_property_set_bool (d, "storage.requires_eject", FALSE);
238
239     hal_device_add_capability (d, "block");
240
241     devinfo_storage_minors (d, node, (char *)devfs_path, FALSE);
242
243     return (d);
244 }

246 /* SCSI */

248 HalDevice *
249 devinfo_scsi_add(HalDevice *parent, di_node_t node, char *devfs_path, char *device_type)
250 {
251     int      i;
252     char    *driver_name;
253     HalDevice *d;
254     char    udi[HAL_PATH_MAX];
255
256     driver_name = di_driver_name (node);
257     if ((driver_name == NULL) || (strcmp (driver_name, "sd") != 0)) {
258         return (NULL);
259     }

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261     d = hal_device_new ();
263     devinfo_set_default_properties (d, parent, node, devfs_path);
264     hal_device_property_set_string (d, "info.subsystem", "scsi");
266     hal_util_compute_udi (hald_get_gdl (), udi, sizeof (udi),
267         "%s/%s%d", hal_device_get_udi (parent), di_node_name(node), di_i
268     hal_device_set_udi (d, udi);
269     hal_device_property_set_string (d, "info.udi", udi);

271     hal_device_property_set_int (d, "scsi.host",
272         hal_device_property_get_int (parent, "scsi_host.host"));
273     hal_device_property_set_int (d, "scsi.bus", 0);
274     PROP_INT(d, node, i, "target", "scsi.target");
275     PROP_INT(d, node, i, "lun", "scsi.lun");
276     hal_device_property_set_string (d, "info.product", "SCSI Device");
278     devinfo_add_enqueue (d, devfs_path, &devinfo_scsi_handler);

280 } return (devinfo_scsi_storage_add (d, node, devfs_path));
281 }

283 static HalDevice *
284 devinfo_scsi_storage_add(HalDevice *parent, di_node_t node, char *devfs_path)
285 {
286     HalDevice *d;
287     int     *i;
288     char    *s;
289     char    udi[HAL_PATH_MAX];
291
292     d = hal_device_new ();
293
294     devinfo_set_default_properties (d, parent, node, devfs_path);
295     hal_device_property_set_string (d, "info.category", "storage");
296
297     hal_util_compute_udi (hald_get_gdl (), udi, sizeof (udi),
298         "%s/%s%d", hal_device_get_udi (parent), di_instance (node));
299     hal_device_set_udi (d, udi);
300     hal_device_property_set_string (d, "info.udi", udi);
301     PROP_STR(d, node, s, "inquiry-product-id", "info.product");

302     hal_device_add_capability (d, "storage");

303     hal_device_property_set_int (d, "storage.lun",
304         hal_device_property_get_int (parent, "scsi.lun"));
305     PROP_BOOL(d, node, i, "hotpluggable", "storage.hotpluggable");
306     PROP_BOOL(d, node, i, "removable-media", "storage.removable");
307     hal_device_property_set_bool (d, "storage.requires_eject", FALSE);

308 /**
309  * We have to enable polling not only for drives with removable media,
310  * but also for hotpluggable devices, because when a disk is
311  * unplugged while busy/mounted, there is not sysevent generated.
312  * Instead, the HBA driver (sca2usb, scsa1394) will notify sd driver
313  * and the latter will report DKIO_DEV_GONE via DKIOCSTATE ioctl.
314  * So we have to enable media check so that hald-addon-storage notices
315  * the "device gone" condition and unmounts all associated volumes.
316  */
317     hal_device_property_set_bool (d, "storage.media_check_enabled",
318         ((di_prop_lookup_ints(DDI_DEV_T_ANY, node, "removable-media", &i) >=
319          (di_prop_lookup_ints(DDI_DEV_T_ANY, node, "hotpluggable", &i) >= 0))
320
321         if (di_prop_lookup_ints(DDI_DEV_T_ANY, node, "inquiry-device-type",
322             &i) > 0) {
323             s = devinfo_scsi_dtype2str (*i);

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326         hal_device_property_set_string (d, "storage.drive_type", s);

328         if (strcmp (s, "cdrom") == 0) {
329             hal_device_add_capability (d, "storage.cdrom");
330             hal_device_property_set_bool (d, "storage.no_partitions",
331                 hal_device_property_set_bool (d, "storage.requires_eject"
332             })
333         }

335         hal_device_add_capability (d, "block");

337         devinfo_storage_minors (d, node, devfs_path, FALSE);
338     }
339
340 }

342 static char *
343 devinfo_scsi_dtype2str(int dtype)
344 {
345     char *dtype2str[] = {
346         "disk" , /* DTTYPE_DIRECT      0x00 */
347         "tape" , /* DTTYPE_SEQUENTIAL   0x01 */
348         "printer", /* DTTYPE_PRINTER     0x02 */
349         "processor", /* DTTYPE_PROCESSOR   0x03 */
350         "worm" , /* DTTYPE_NORM        0x04 */
351         "cdrom" , /* DTTYPE_RODIRECT     0x05 */
352         "scanner", /* DTTYPE_SCANNER     0x06 */
353         "cdrom" , /* DTTYPE_OPTICAL      0x07 */
354         "changer", /* DTTYPE_CHANGER     0x08 */
355         "comm" , /* DTTYPE_COMM        0x09 */
356         "scsi" , /* DTTYPE_???         0x0A */
357         "scsi" , /* DTTYPE_???         0x0B */
358         "array_ctrl", /* DTTYPE_ARRAY_CTRL  0x0C */
359         "esi" , /* DTTYPE_ESI         0x0D */
360         "disk" /* DTTYPE_RBC         0x0E */
361     };
362
363     if (dtype < NELEM(dtype2str)) {
364         return (dtype2str[dtype]);
365     } else {
366         return ("scsi");
367     }
368 }

369 }

370 /* blkdev */

371 HalDevice *
372 devinfo_blkdev_add(HalDevice *parent, di_node_t node, char *devfs_path, char *de
373 {
374     int     *i;
375     char    *driver_name;
376     HalDevice *d;
377     char    udi[HAL_PATH_MAX];
378
379     driver_name = di_driver_name (node);
380     if ((driver_name == NULL) || (strcmp (driver_name, "blkdev") != 0)) {
381         return (NULL);
382     }
383
384     d = hal_device_new ();

385     devinfo_set_default_properties (d, parent, node, devfs_path);
386     hal_device_property_set_string (d, "info.subsystem", "pseudo");
387
388     hal_util_compute_udi (hald_get_gdl (), udi, sizeof (udi),
389

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392         "%s/%s%d", hal_device_get_udi (parent), di_node_name(node), di_i
393         hal_device_set_udi (d, udi);
394         hal_device_property_set_string (d, "info.udl", udi);
395         hal_device_property_set_string (d, "info.product", "Block Device");
397         devinfo_add_enqueue (d, devfs_path, &devinfo_blkdev_handler);
399     return (devinfo_blkdev_storage_add (d, node, devfs_path));
400 }

402 static HalDevice *
403 devinfo_blkdev_storage_add(HalDevice *parent, di_node_t node, char *devfs_path)
404 {
405     HalDevice *d;
406     char *driver_name;
407     int *i;
408     char *s;
409     char udi[HAL_PATH_MAX];
411
412     d = hal_device_new ();
413
414     devinfo_set_default_properties (d, parent, node, devfs_path);
415     hal_device_property_set_string (d, "info.category", "storage");
416
417     hal_util_compute_udl (hal_get_gdl (), udi, sizeof (udi),
418         "%s/bkdev%d", hal_device_get_udi (parent), di_instance (node));
419     hal_device_set_udi (d, udi);
420     hal_device_property_set_string (d, "info.udl", udi);
421
422     hal_device_add_capability (d, "storage");
423
424     hal_device_property_set_int (d, "storage.lun", 0);
425
426     PROP_BOOL(d, node, i, "hotpluggable", "storage.hotpluggable");
427     PROP_BOOL(d, node, i, "removable-media", "storage.removable");
428
429     hal_device_property_set_bool (d, "storage.requires_eject", FALSE);
430     hal_device_property_set_bool (d, "storage.media_check_enabled", TRUE);
431     hal_device_property_set_string (d, "storage.drive_type", "disk");
432
433     hal_device_add_capability (d, "block");
434
435     devinfo_storage_minors (d, node, devfs_path, FALSE);
436
437 }
438 /* floppy */
439 HalDevice *
440 devinfo_floppy_add(HalDevice *parent, di_node_t node, char *devfs_path, char *de
441 {
442     di_devlink_handle_t devlink_hdl;
443     char *driver_name;
444     char *raw;
445     char udi[HAL_PATH_MAX];
446     di_minor_t minor;
447     int major;
448     dev_t dev;
449     HalDevice *d = NULL;
450     char *minor_path = NULL;
451     char *devlink = NULL;
452
453     driver_name = di_driver_name (node);
454     if ((driver_name == NULL) || (strcmp (driver_name, "fd") != 0)) {
455         return (NULL);
456
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524 static void
525 devinfo_floppy_add_volume(HalDevice *parent, di_node_t node)
526 {
527     char    *devlink;
528     char    *devfs_path;
529     int     minor, major;
530     dev_t   dev;
531     struct devinfo_storage_minor *m;

533     devfs_path = (char *)hal_device_property_get_string (parent, "solaris.devlink");
534     devlink = (char *)hal_device_property_get_string (parent, "block.device");
535     major = hal_device_property_get_int (parent, "block.major");
536     minor = hal_device_property_get_int (parent, "block.minor");
537     dev = makedev (major, minor);

539     m = devinfo_storage_new_minor (devfs_path, WHOLE_DISK, devlink, dev, -1)
540     devinfo_volume_add (parent, node, m);
541     devinfo_storage_free_minor (m);
542 }

544 /*
545  * After reprobining storage, reprobe its volumes.
546 */
547 static void
548 devinfo_floppy_rescan_probing_done (HalDevice *d, guint32 exit_type, gint return
549     char **error, gpointer userdatal, gpointer userdata2)
550 {
551     void *end_token = (void *) userdatal;
552     const char *devfs_path;
553     di_node_t node;
554     HalDevice *v;

556     if (!hal_device_property_get_bool (d, "storage.removable.media_available"
557         HAL_INFO ((("no floppy media", hal_device_get_udi (d))));

559     /* remove child (can only be single volume) */
560     if ((v = hal_device_store_match_key_value_string (hal_device_get_gdl(
561         "info.parent", hal_device_get_udi (d))) != NULL) &&
562         ((devfs_path = hal_device_property_get_string (v,
563             "solaris.devfs_path")) != NULL)) {
564         devinfo_remove_enqueue ((char *)devfs_path, NULL);
565     }
566     } else {
567         HAL_INFO ((("floppy media found", hal_device_get_udi (d)));

569         if ((devfs_path = hal_device_property_get_string(d, "solaris.dev"
570             HAL_INFO ((("no devfs_path", hal_device_get_udi (d));
571             hotplug_event_process_queue ();
572             return;
573
574         if ((node = di_init (devfs_path, DINFOCPYALL)) == DI_NODE_NIL) {
575             HAL_INFO ((("di_init %s failed %d", devfs_path, errno));
576             hotplug_event_process_queue ();
577             return;
578         }

580         devinfo_floppy_add_volume (d, node);

582         di_fini (node);
583     }

585     hotplug_event_process_queue ();
586 }
587
588 /* lofi */

```

```

590 HalDevice *
591 devinfo_lofi_add(HalDevice *parent, di_node_t node, char *devfs_path, char *devi
592 {
593     return (devinfo_lofi_add_major(parent, node, devfs_path, device_type, FAL
594 }

596 HalDevice *
597 devinfo_lofi_add_major(HalDevice *parent, di_node_t node, char *devfs_path, char
598 gboolean rescan, HalDevice *lofi_d)
599 {
600     char    *driver_name;
601     HalDevice *d = NULL;
602     char    udi[HAL_PATH_MAX];
603     di_devlink_handle_t devlink_hdl;
604     int     major;
605     di_minor_t minor;
606     dev_t   dev;
607     char    *minor_path = NULL;
608     char    *devlink = NULL;

610     driver_name = di_driver_name (node);
611     if ((driver_name == NULL) || (strcmp (driver_name, "lofi") != 0)) {
612         return (NULL);
613     }

615     if (!rescan) {
616         d = hal_device_new ();

618     devinfo_set_default_properties (d, parent, node, devfs_path);
619     hal_device_property_set_string (d, "info.subsystem", "pseudo");

621     hal_util_compute_udid (hal_device_get_gdl (), udi, sizeof (udi),
622         "%s/%s%d", hal_device_get_udi (parent), di_node_name (node));
623     hal_device_set_udid (d, udi);
624     hal_device_property_set_string (d, "info.udid", udi);

626     devinfo_add_enqueue (d, devfs_path, &devinfo_lofi_handler);
627
628     } else {
629         d = lofi_d;
630     }

631     /*
632      * Unlike normal storage, as in devinfo_storage_minors(), where
633      * sd instance -> HAL storage, sd minor node -> HAL volume,
634      * lofi always has one instance, lofi minor -> HAL storage.
635      * lofi storage never has slices, but it can have
636      * embedded pcfs partitions that fstyp would recognize
637      */
638     major = di_driver_major (node);
639     if ((devlink_hdl = di_devlink_init (NULL, 0)) == NULL) {
640         return (d);
641     }
642     minor = DI_MINOR_NIL;
643     while ((minor = di_minor_next (node, minor)) != DI_MINOR_NIL) {
644         dev = di_minor_devt (minor);
645         if ((major != major (dev)) ||
646             (di_minor_type (minor) != DDM_MINOR) ||
647             (di_minor_spectype (minor) != S_IFBLK) ||
648             ((minor_path = di_devfs_minor_path (minor)) == NULL)) {
649             continue;
650         }
651         if ((devlink = get_devlink (devlink_hdl, NULL, minor_path)) == NU
652             di_devfs_path_free (minor_path);
653             continue;
654     }

```

```

656     if (!rescan ||
657         (hal_device_store_match_key_value_string (hald_get_gdl (),
658          "solaris.devfs_path", minor_path) == NULL)) {
659             devinfo_lofi_add_minor(d, node, minor_path, devlink, dev
660         }
661
662         di_devfs_path_free (minor_path);
663         free(devlink);
664     }
665     di_devlink_fini (&devlink_hdl);
666
667     return (d);
668 }
669
670 static void
671 devinfo_lofi_add_minor(HalDevice *parent, di_node_t node, char *minor_path, char
672 {
673     HalDevice *d;
674     char    *raw;
675     char    *doslink;
676     char    dospath[64];
677     struct devinfo_storage_minor *m;
678     int      i;
679
680     /* add storage */
681     d = hal_device_new ();
682
683     devinfo_set_default_properties (d, parent, node, minor_path);
684     hal_device_property_set_string (d, "info.category", "storage");
685     hal_device_add_capability (d, "storage");
686     hal_device_property_set_string (d, "storage.bus", "lofi");
687     hal_device_property_set_bool (d, "storage.hotpluggable", TRUE);
688     hal_device_property_set_bool (d, "storage.removable", FALSE);
689     hal_device_property_set_bool (d, "storage.requires_eject", FALSE);
690     hal_device_property_set_string (d, "storage.drive_type", "disk");
691     hal_device_add_capability (d, "block");
692     hal_device_property_set_int (d, "block.major", major(dev));
693     hal_device_property_set_int (d, "block.minor", minor(dev));
694     hal_device_property_set_string (d, "block.device", devlink);
695     raw = dsk_to_rdsk (devlink);
696     hal_device_property_set_string (d, "block.solaris.raw_device", raw);
697     free (raw);
698     hal_device_property_set_bool (d, "block.is_volume", FALSE);
699
700     devinfo_add_enqueue (d, minor_path, &devinfo_storage_handler);
701
702     /* add volumes: one on main device and a few pcfs candidates */
703     m = devinfo_storage_new_minor(minor_path, WHOLE_DISK, devlink, dev, -1);
704     devinfo_volume_add (d, node, m);
705     devinfo_storage_free_minor (m);
706
707     doslink = (char *)calloc (1, strlen (devlink) + sizeof ("pNN") + 1);
708     doslink = (char *)calloc (1, strlen (devlink) + sizeof (:NNN") + 1);
709     if (doslink != NULL) {
710         for (i = 1; i < 16; i++) {
711             sprintf(dospath, sizeof (dospath), "p%d", i);
712             sprintf(doslink, "%sp%d", devlink, i);
713             sprintf(dospath, sizeof (dospath), WHOLE_DISK":%d", i);
714             sprintf(doslink, "%s:%d", devlink, i);
715             m = devinfo_storage_new_minor(minor_path, dospath, doslink);
716             devinfo_volume_add (d, node, m);
717             devinfo_storage_free_minor (m);
718     }
719     free (doslink);
720 }
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862         }
863
864         /* ignore p1..N - we'll use p0:N instead */
865         if ((strlen(slice) > 1) && (slice[0] == 'p') && isdigit(slice[1]
866             ((atol(&slice[1])) > 0)) {
867             free (devlink);
868             di_devfs_path_free (minor_path);
869             continue;
870         }
871
872         m = devinfo_storage_new_minor(minor_path, slice, devlink, dev, -
873             if (m == NULL) {
874                 free (devlink);
875                 di_devfs_path_free (minor_path);
876                 continue;
877             }
878
879             /* main device is either s2/p0 or d0, the latter taking preceden
880             if ((strcmp (slice, "d0") == 0) ||
881                 ((strcmp (slice, whole_disk) == 0) && (maindev == NULL)))
882                 if (maindev_path != NULL) {
883                     di_devfs_path_free (maindev_path);
884
885                     maindev_path = minor_path;
886                     maindev = m;
887                     g_queue_push_head (mq, maindev);
888                 } else {
889                     di_devfs_path_free (minor_path);
890                     g_queue_push_tail (mq, m);
891                 }
892
893                 free (devlink);
894             }
895             di_devlink_fini (&devlink_hdl);
896
897             if (maindev == NULL) {
898                 /* shouldn't typically happen */
899                 while (!g_queue_is_empty (mq)) {
900                     devinfo_storage_free_minor (g_queue_pop_head (mq));
901                 }
902                 goto err;
903             }
904
905             /* first enqueue main storage device */
906             if (!rescan) {
907                 hal_device_property_set_int (parent, "block.major", major);
908                 hal_device_property_set_int (parent, "block.minor", minor(mainde
909                 hal_device_property_set_string (parent, "block.device", maindev-
910                 raw = dsk_to_rdisk (maindev->devlink);
911                 hal_device_property_set_string (parent, "block.solaris.raw_devi
912                 free (raw);
913                 hal_device_property_set_bool (parent, "block.is_volume", FALSE);
914                 hal_device_property_set_string (parent, "solaris.devfs_path", ma
915                 devinfo_add_enqueue (parent, maindev_path, &devinfo_storage_hand
916             }
917
918             /* add virtual dos volumes to enable pcfs probing */
919             if (!is_cdrom) {
920                 doslink_len = strlen (maindev->devlink) + sizeof ("pNN") + 1;
921                 doslink_len = strlen (maindev->devlink) + sizeof (:NNN") + 1;
922                 if ((doslink = (char *)calloc (1, doslink_len)) != NULL) {
923                     for (i = 1; i < 16; i++) {
924                         sprintf(dospath, sizeof (dospath), "%sp%d", mai
925                         sprintf(doslink, doslink_len, "%sp%d", maindev-
926                         sprintf(dospath, sizeof (dospath), "%s:%d", mai
927                         sprintf(doslink, doslink_len, "%s:%d", maindev-

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```
1406 static gboolean
1407 dos_to_dev(char *path, char **devpath, int *partnum)
1408 {
1409     char *p;
1410
1411     if ((p = strchr (path, 'p')) == NULL) {
1412         if ((p = strchr (path, ':')) == NULL) {
1413             return (FALSE);
1414         if ((*partnum = atoi(p + 1)) == 0) {
1415             return (FALSE);
1416         }
1417         p[0] = '\0';
1418         *devpath = strdup(path);
1419         p[0] = 'p';
1420         p[0] = ':';
1421     }
1422     return (*devpath != NULL);
1423 }
```

unchanged portion omitted