OpenBMC Support for Redfish

Gunnar Mills, Senior Software Engineer, IBM

OpenBMC

- Open-source project founded in 2014/2015
- 2018 became a Linux Foundation project
- Linux distribution for management controllers such as BMCs
- Used in
  - Cloud-scale data centers
  - Enterprise
  - High-performance computing (HPC)
  - Telecommunications
- Led by
  - Technical Steering Committee (TSC)
  - Elected Technical Oversight Forum (TOF)

OpenBMC Today

- 1.9k stars / 900 forks on GitHub
- 700+ users on Discord (Chat)
- 72 Companies have signed CLA
- 515 commits merged in Sept 2024

Subject	Owner	Reviewers	Repo
Redfish support for MFA	Asmitha Karu...	Gunnar, Abhilash ... , +3	openbmc/bmcweb
factor eventMatchesFilter	Ed Tanous	Gunnar, Arun Lal ... , +2	openbmc/bmcweb
format readjson	Ed Tanous	Gunnar, Nan	openbmc/bmcweb
Add IsGenerateSecretKeyRequired D-bus method	Ravi Teja	Abhilash ... , Patrick	openbmc/phosphor-dbus-i...
Add a try/catch to a nlohmann::json::dump()	Matt Spinler	Deepak	openbmc/phosphor-logging
tree: initialize node attribute format	Brian Ma	Ed, Smriti-Ay... , +2	openbmc/libbej
ide docker registry override in remaining scripts	Andrew Geissl...	Joel, Patrick	openbmc/openbmc-build-s...
mp: Remove IBM and OpenPower plugin dump scripts	Gopichand Pa...	Andrew, Dhruvaraj, +2	openbmc/phosphor-debug-...
Flow: Utility for MFA flow for first log-in	Abhilash Raju	Gunnar, Ravi, +1	openbmc/bmcweb
A: Add verifyTOTP redfish action for manager acc	Asmitha Karu...	Gunnar, Ed	openbmc/bmcweb
web: srcrev bump c5bcf35f5b..352e3b78d5	Andrew Geissl...	Brad, Ed, +1	openbmc/openbmc
: srcrev bump e188b91cd4..ef0b76de01	Andrew Geissl...	Brad, Ed, +1	openbmc/openbmc
e-facebook: ventura: Enable gpio monitor and prese...	Jason Hsu	Amithash, Andrew, +3	openbmc/openbmc
ort: Use Custom Package instead of Header Extens...	Gopichand Pa...	Andrew, Jayanth, +2	openbmc/phosphor-debug-...
st and wait for ready after firmware update	Leo Xu	Gunnar, Kiran Ku... , +1	openbmc/webui-vue
bmc: Implementing coroutines for setHostSensorS...	Riya Dixit	Deepak, ManojKir... , +1	openbmc/pldm
e-facebook: ventura: Add configuration in phosphor-...	Jason Hsu	Amithash, Andrew, +3	openbmc/openbmc
ventura: Enable logger for sensor thres...	Jason Hsu	Amithash, Andrew, +3	openbmc/openbmc
are update task, show the progress on loadin...	Leo Xu	Gunnar, Kiran Ku...	openbmc/webui-vue
crev bump 2332e05723..36324f6bea	Andrew Geissl...	Brad, Ed, +1	openbmc/openbmc
e-facebook: ventura: Add mbpoll for communicate ...	Jason Hsu	Amithash, Andrew, +3	openbmc/openbmc
alues under the client interface	George Liu	MARRI, Ratan	openbmc/phosphor-snmp...
emite4: virtual-sensor: adjust threshold of FIO temp...	Ricky CX Wu	Amithash, Andrew, +3	openbmc/openbmc
ibm/system1: Add pch-standby service	Asmitha Karu...	Adriana, Andrew, +3	openbmc/openbmc

OpenBMC's Redfish implementation

- Bmcweb

  - Embedded webserver

  - Async

  - Configurable

  - Boost::Beast

  - C++23

  - github.com/openbmc/bmcweb

Bmcweb features

- Aggregation
- Authentication middleware
  - Basic, Cookie, Mutual TLS, Token-based
- Host serial console
- KVM, Virtual media
- Static file hosting for Web Interface
- Translate D-Bus interfaces to Redfish

master ⌄   bmcweb / Redfish.md   ↑ Top

Preview   Code   Blame   1119 lines (825 loc) · 19.7 KB   Raw

1   # Redfish

30 ⌄   ### /redfish/v1/

31

32 ⌄   #### ServiceRoot

33

34   - AccountService
35   - AggregationService
36   - Cables
37   - CertificateService
38   - Chassis
39   - EventService
40   - JsonSchemas
41   - Links/ManagerProvidingService
42   - Links/Sessions
43   - Managers
44   - RedfishVersion
45   - Registries
46   - SessionService
47   - Systems

117 supported Redfish schemas and growing!

Picking up the latest Redfish schemas

74675 ▾ Update to 2024.3

SHOW ALL ▾   REPLY

Sep 17

Gunnar Mills
Gunnar Mills
Gunnar Mills
d Tanous +2   Myung Bae +1
enBMC CI
Zhou

c/bmcweb | master

+2 +1
+1

itRequi... Satisfied

Update to 2024.3

1 line change in update_schemas.py and rerun it.

See below for more info on this release:

https://www.dmtf.org/content/redfish-release-20243-now-available

Tested: Inspection only.

Change-Id: I856b9777fd386f828724bd7a521dcd5c8c3270cf
Signed-off-by: Gunnar Mills <gmills@us.ibm.com>

Comments   🗨 1 resolved

Relation chain

Update symlinks for 2024.3 ✓ (Merged)
➔ Update to 2024.3 ✓ (Merged)

redfish-core/schema/dmtf/json-schema/AccountService.v1_16_0.json   File 36 of 63 Prev Up Next

set 1 ▾   browse   DOWNLOAD ▾   SHOW BLAME   Diff view:

File
core/schema/dmtf/json-schema/AccountService.v1_15_1.json   1 {
re/schema/dmtf/json-schema/AccountService.v1_16_0.json   2   "$id": "http://redfish.dmtf.org/schemas/v1/AccountService.v1_16_0.json",
                                                          3   "$ref": "#/definitions/AccountService",
redfish.dmtf.org/schemas/v1/AccountService.v1_15_1.json", 4   "$schema": "http://redfish.dmtf.org/schemas/v1/redfish-schema-v1.json",
nitions/AccountService",   5   "copyright": "Copyright 2014-2024 DMTF. For the full DMTF copyright po
tp://redfish.dmtf.org/schemas/v1/redfish-schema-v1.json",   cy, see http://www.dmtf.org/about/policies/copyright",
Copyright 2014-2024 DMTF. For the full DMTF copyright poli 6   {
w.dmtf.org/about/policies/copyright",   7   "definitions": {
": {   8   "AccountProviderTypes": {
ProviderTypes": {   9   "enum": [
um": [10   "RedfishService",
  "RedfishService",   11   "ActiveDirectoryService",
  "ActiveDirectoryService",   12   "LDAPService",
  "LDAPService",   "OEM",
  "OEM",

+1054 common lines

+10
+10

  },   1067   },
  "GoogleAuthenticator": {   1068   "GoogleAuthenticator": {
    "anyOf": [1069   "anyOf": [
      {   1070   {
        "$ref": "#/definitions/GoogleAuthenticator"   1071   "$ref": "#/definitions/GoogleAuthenticator"
      },   1072   },
      {   1073   {
        "type": "null"   1074   "type": "null"

Webui-vue

OpenBMC working with DMTF

- PMCI

- Pushing upstream to Redfish

  - New schemas and properties (Cables, Dump, PowerModes, etc., etc.)

  - Optimizations (Extend query parameter support)

  - Questions and clarification (Sensor excerpt, Event TerminateAfterRetries)

- Requirement for new OEM schemas to discuss with Redfish first

  - Push common use cases upstream into the standard

EMPOWERING OPEN.

Redfish Service Validator as part of OpenBMC CI

OpenBMC and OCP

- OpenBMC and OCP have a long history
- OpenBMC is used on or has been ported to a significant number of OCP platforms
  - Tioga Pass
  - Mt Olympus
  - Yosemite V3
- Supports and passes tests for the OCP base server profile*

Getting started with OpenBMC and bmcweb

- Mailing list: https://lists.ozlabs.org/listinfo/openbmc/

- Discord: https://discord.gg/69Km47zH98

  - GunnarM

- Gerrit: https://gerrit.openbmc.org/q/project:openbmc/bmcweb

- OpenBMC Docs: https://github.com/openbmc/docs

Discord & Mailing list

Left panel (Discord):

OpenBMC

- fans-and-sensors
- serial-consoles
- leds-and-indicators
- inventory
- webui
- Translations for languag...
- Vue 3
- infrastructure
- test-automation
- security

PROTOCOLS

- redfish-and-bmcweb
- Multi-host support in re...
- Hi All, any reason or sug...
- ipmi
- pmci

COMMUNITY

- community-dev

redfish-and-bmcweb   Redfish (and the bmcweb implementation)

October 3, 2024

Hieu Huynh 10/03/2024 2:20 AM
Hi @edtanous , May I have a question about the Timer is 5 minutes for FW update https://github.com/openbmc/bmcweb/blob/master/redfish-core/lib/update_service.hpp#L220 is comes from? We face an issue with CPLD FW update on our system. The timer is 5 minutes is not enough for FW update. The TaskService returns "TaskState": "Cancelled" when upgrading CPLD FW.

@Hieu Huynh Hi @edtanous , May I have a question about the Timer is 5 minutes for FW update https://github.co...

GunnarM 10/03/2024 7:56 AM
It has been there a while.
https://github.com/openbmc/bmcweb/commit/fd9ab9e1cfca7b9fb31eb6d29b4468fdb0f515de
James I think just chose a time he thought was reasonable based on testing some code updates

edtanous 10/03/2024 8:14 AM
It's supposed to be 5 minutes between progress messages, not 5 minutes for the whole flow.
👍 2 😊

@GunnarM It has been there a while. https://github.com/openbmc/bmcweb/commit/fd9ab9e1cfca7b9fb31eb6d2...

Hieu Huynh 10/03/2024 8:43 PM
I think that too, because I couldn't find any define for this timer. It's works if changed to 6 minutes but seems not a good solution.

October 4, 2024

edtanous 10/04/2024 2:39 PM
There doesn't need to be a define
5 minutes is FOREVER in between progress updates that should be coming every 10-30 seconds

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Right panel (Mailing list):

[PATCH] usb: chipidea: npcm: Fix coding style with missing space   *Andr*
[PATCH v2 6/7] i2c: npcm: use i2c frequency table   *Tali Perry*
  ○ [PATCH v2 6/7] i2c: npcm: use i2c frequency table   *Andy Shevcher*
    ■ [PATCH v2 6/7] i2c: npcm: use i2c frequency table   *Tali Per*
      ■ [PATCH v2 6/7] i2c: npcm: use i2c frequency table   *A*
  ○ [PATCH v2 6/7] i2c: npcm: use i2c frequency table   *Andi Shyti*
    ■ [PATCH v2 6/7] i2c: npcm: use i2c frequency table   *Tyrone 1*
      ■ [PATCH v2 6/7] i2c: npcm: use i2c frequency table   *A*
      ■ [PATCH v2 6/7] i2c: npcm: use i2c frequency table   *Ty*
[PATCH v6 1/2] dt-bindings: media: convert aspeed-video.txt to dt-schem
[PATCH v6 1/2] dt-bindings: media: convert aspeed-video.txt to dt-
  ○ [PATCH v6 1/2] dt-bindings: media: convert aspeed-video.txt
[PATCH v2 5/7] i2c: npcm: Modify the client address assignment   *Tyrone*
  ○ [PATCH v2 5/7] i2c: npcm: Modify the client address assignment   *A*
    ■ [PATCH v2 5/7] i2c: npcm: Modify the client address assign
[PATCH] usb: chipidea: npcm: Fix coding style with clarification of data t
  ○ [PATCH] usb: chipidea: npcm: Fix coding style with clarification of
[PATCH linux dev-6.6] ARM: dts: aspeed: Fix Rainier and Blueridge GPI
  ○ [PATCH linux dev-6.6] ARM: dts: aspeed: Fix Rainier and Blueridg
    ■ [PATCH linux dev-6.6] ARM: dts: aspeed: Fix Rainier and Bl
No CI executed in gerrit   *Chiang.Brian 江泳緻 TAO*
  ○ No CI executed in gerrit   *Patrick Williams*
Wiwynn's CCLA Schedule A update 2024-08-29   *Andrew Geissler*
Wistron CCLA Schedule A update 20240823   *Andrew Geissler*
[PATCH 0/2] Update the device tree for Mt.Mitchell's BMC platform   *Ch*
  ○ [PATCH 1/2] ARM: dts: aspeed: mtmitchell: Add I2C FAN controll
    ■ [PATCH 1/2] ARM: dts: aspeed: mtmitchell: Add I2C FAN c
  ○ [PATCH 2/2] ARM: dts: aspeed: mtmitchell: Add gpio line names f
[PATCH v2 1/7] i2c: npcm: restore slave addresses array length   *Andi Sh*
  ○ [PATCH v2 1/7] i2c: npcm: restore slave addresses array length   *A*
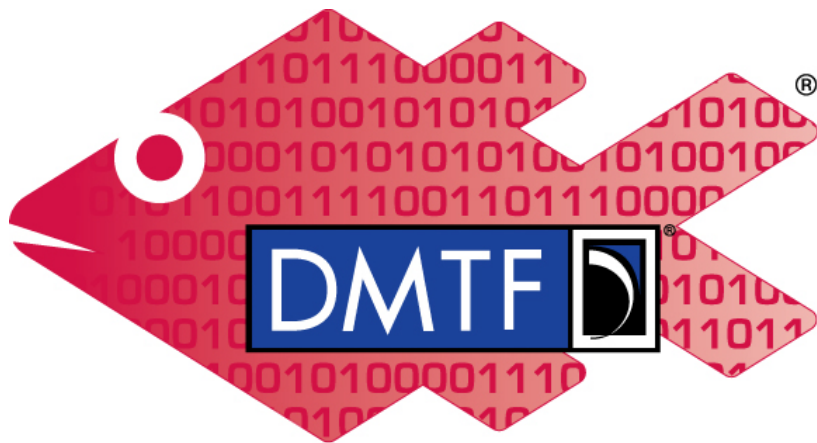   ■ [PATCH v2 1/7] i2c: npcm: restore slave addresses array leng

Submitting an OpenBMC Patch: Step by Step

- Learn to use Git

- Open a GitHub Account for Gerrit authentication

- Clone a project from Gerrit (not GitHub!)

- Make changes, test, and commit

- Read and apply the contributing rules, https://github.com/openbmc/docs/blob/master/CONTRIBUTING.md

- Add your peers to the list of reviewers for you patch

- Don't be afraid. The community will help! Ask for help on Discord.

Thank you!