

digitalSTROM virtual device container overview

digitalSTROM

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1 Terms

Term	Description
(logical) vDC	virtual device connector. A vDC is primarily a logical entity within the dS system and has its own dSUID. A vDC represents a type or class of external devices.
vDC host	network device offering a server socket for vdsd to connect to. One vDC host can host multiple logical vDCs, if the host supports multiple device classes.
vdSM	virtual digitalSTROM Meter. A vdSM can connect to one or several vDC hosts to connect one or several logical vDCs to the dS system.
vdSD	virtual digitalSTROM device. A vdSD represents a single device in the dS system, and behaves like a real digitalSTROM terminal block (dSD, digitalSTROM device)
vDC session	logical connection between a vdSM and a vDC host (representing one or multiple vDCs)

2 Context

digitalSTROM virtual device containers (vDC) enable the integration of IP based devices into the digitalSTROM System similar to adding digitalSTROM terminal blocks (dSD) to the system. IP based devices in the local network run a vDC to connect to the digitalSTROM System thru a virtual digitalSTROM Meter (vdSM). A vDC can host multiple devices or device classes. A vDC is even suitable to integrate a gateway to another bus- or network-technology e.g. enocean, dali asf.

4 different device types can be distinguished.

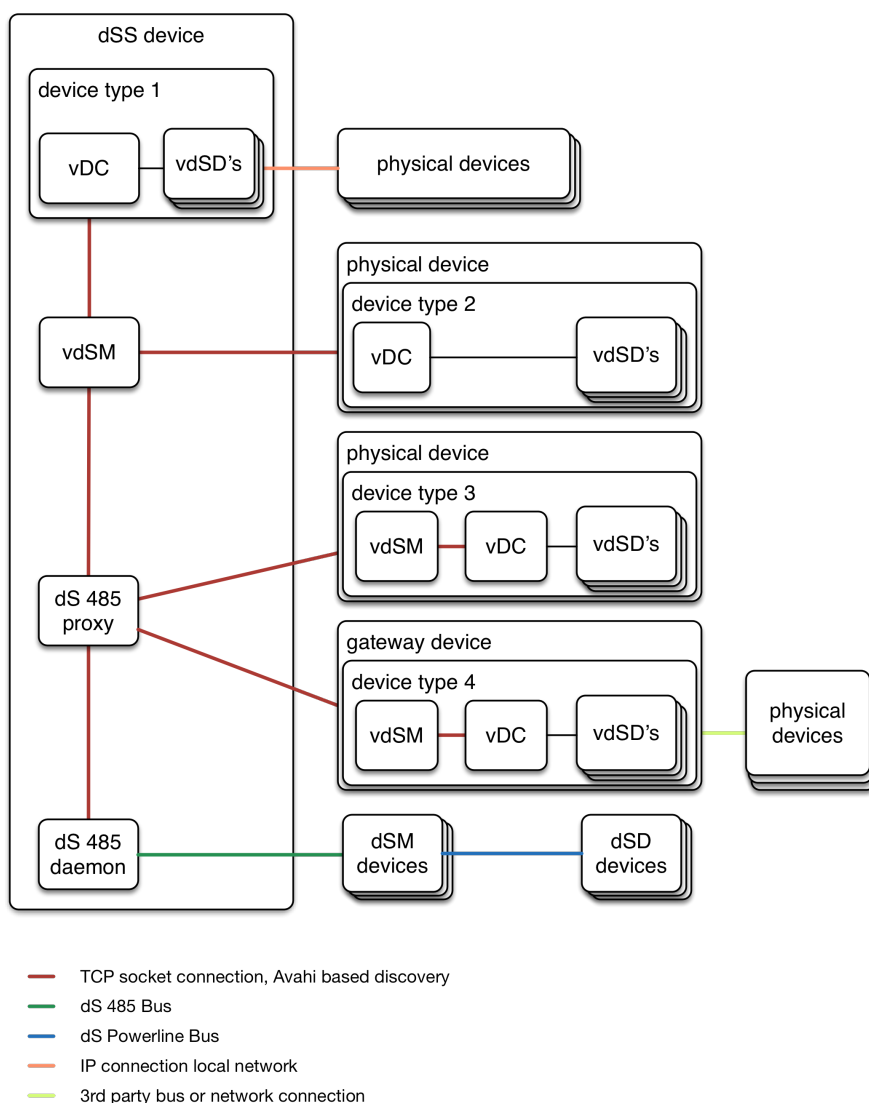


Figure 1: digitalSTROM vDC overview

2.1 device types

- device type 1 integrates devices thru the vDSM and the vDC running on the digitalSTROM Server module of the digitalSTROM installation.
- device type 2 integrates devices thru the vdSM running on the digitalSTROM Server module of the digitalSTROM installation. The vDC component is running on the physical device.
- device type 3 integrates devices thru a vdSM and the vDC running on the physical device. This setup allows for the integration of multiple devices.
- device type 4 serves as a gateway to integrate devices using bus- or network-technologies different from IP, e.g. EnOcean, Zigbee, EEBUS asf. The

Please get in touch with digitalSTROM AG to define which device type is suitable for your product.

2.2 device detail

The effort to integrate devices is reduced to program the glue logic to connect the vDC API to the real devices API.

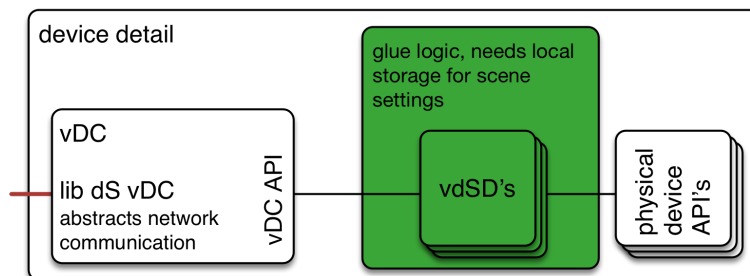


Figure 2: device detail

2.3 physical device OS

vdSM and vDC are available for embedded linux. Please contact digitalSTROM AG if your device runs an operating system different from linux.

2.4 digitalSTROM configuration UI device representation

vDC's are displayed in the UI together with dSM devices. A vDC has a (virtual) standard room where all connected vdSD's are shown initially. vdSD's can be assigned to real rooms and behave exactly like real digitalSTROM Terminal blocks.

2.5 Discovery

vDC hosts and vdSMs announce their services using Avahi. vdSMs look for available vDC hosts in the Avahi announcements and connect to at least one of them. vDC hosts might reject connections if they are already connected to another vdSM. dS485 proxy looks for available vdSMs in the Avahi announcements and connect to them. For type 2 devices the internal vdSM is configured to always connect to the in-device vDC host which does not announce its services. To avoid wrong connections, the instance that initiates a connection is able to check possible peers received via Avahi against an optional whitelist. If the whitelist exists, only listed peers will be connected. Whitelists are needed only in environments where multiple digitalSTROM servers are present in the same network, e.g. development environments.

3 Licensing

vDC code is available under GPL V3 . Commercial licences for vDC and vdSM are available from digitalSTROM AG.

4 Documentation And Sample Code

Documentation for the vDC API and the vDC API properties as well as this document is available [here](#).

Sample code is available [in the libdsvdc library repository](#) and [in a netatmo integration project](#)