

Database Downloading from Acnet

Overview of basic approach

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The basic plan for downloading from the Acnet database to a front end that needs this service is as follows: A download property `prDNLD` is defined for use with `RETDAT` and `SETDAT`. The `SSDR` structure is used to house a variable length structure of concatenated records. Each record starts with a size word and a record type word. (The size is in bytes and includes the 4 bytes of these two words.) The record type is a small integer and includes both standard Acnet record types and private (to each front-end type) record types. One of these structures includes a list of downloadable record types. The downloading program uses this list to build the complete download property data structure for targeting to `SETDAT`, with the help of an `SSDN` for the purpose. Several structures refer to standard Acnet properties such as reading and setting `PDBs` or device descriptive text. The private structures are kept by Acnet as part of the `SSDR`.

One can also *upload* the download property via `RETDAT` from a front end that supports it. The same `SSDN` is used. The front end furnishes the entire download property data structure, including the list of downloadable record types for the device, and the `Vax` uploading program can write the non-Acnet information that applies into the `SSDR` data structure. Having the front end supply the entire download property data structure allows the `Vax` to confirm database consistency.

To get started with Acnet downloading of Linac devices, the database must support a suitably-large `SSDR` data structure, as defined originally in Acnet documentation. This will allow a program to be written that can populate the `SSDR` appropriately for all Linac devices that exist today. The reading `SSDN` can be used at first, along with the new `prDNLD` property index for making requests for the `SSDR` from the front end.

In order to make device entry of the `SSDR` property palatable for the user, it is important to have a friendly user interface that will both display the current contents of the `SSDR` in a readable fashion, but also allow entry of new or modified fields as necessary. The support of such friendly interface must depend upon the front-end type, of course, as the `SSDR` is designed to support front-end-private data. Then, upon commitment of the device entry to the database, a post-process is triggered to invoke the downloading program that interprets the list of downloadable record types, builds the full download property data structure including the Acnet records, and targets the indicated front end.

About use of the `SSDR` in the present Acnet database, it has been used to support the family property. This merely means that a device cannot have both `FAMILY` and `DNLD` properties.

The approach herein described is meant to be useful for other front end designs besides Linac. The `DNLD` property can be used, as for Linac, following device entry via a sibling task. But it can also be used for downloading *en masse* to a front end that does not have nonvolatile memory via a separate downloading program that accesses a data file containing a list of device names to determine which devices to download from the Acnet database.