

Developing Web Applications for Power Management Products

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1. Introduction

Power management products such as our *LAN Interface Card* have adopted technology for displaying settings via web browser by using “Java applet” technology. Java applets once had the benefit of being able to provide rich display features independent of the differences between browser specifications.

However, due to security reasons, the current trend is to move away from Java applet and other such web application technologies. In response, as of August 2017, the only web browser that still employs Java applets is Internet Explorer.

Moreover, Java applet has been depreciated in version 9 of “Java” (hereinafter Java 9), released in September 2017, there is no longer a recommendation to use Java Applet.

It is against this backdrop that SANYO DENKI developed web applications for power management products using Java Web Start, a replacement technology of Java applet. This article will provide an overview of this new solution.

2. Overview of Power Management Products

Power management products is the collective term for optional products used in combination with our uninterruptible power supplies (hereinafter “UPS”) and PV inverters.

For example, by combining a UPS with a *LAN Interface Card*, it is possible to monitor the UPS status and automatically shut down computers during prolonged power outages. Moreover, a PV inverter combined with *SANUPS PV Monitor* lets users see and calculate the generated power volume and monitor the operational status of the PV inverter.

Configuring and checking the operational history of these products is done through a browser-based Web management tool. Also, the *LAN Interface Card* features a function for

graphically displaying the operational status of a UPS on a web browser (hereinafter Web display tool).

Figure 1 is an external view of the *LAN Interface Card*, Fig. 2 shows the Web management tool screen, and Fig. 3 shows the Web display tool screen.



Fig. 1: LAN Interface Card

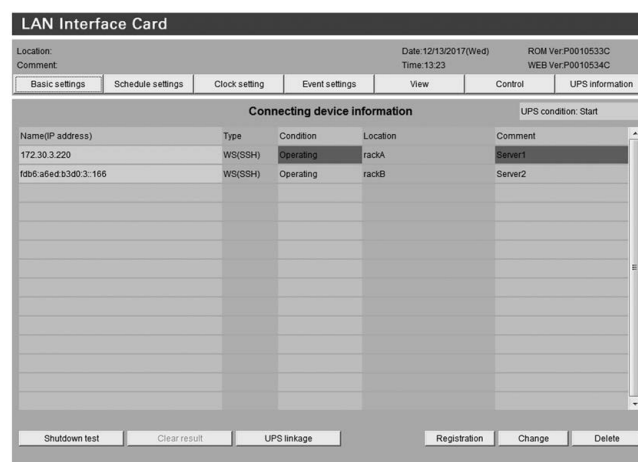


Fig. 2: Web management tool

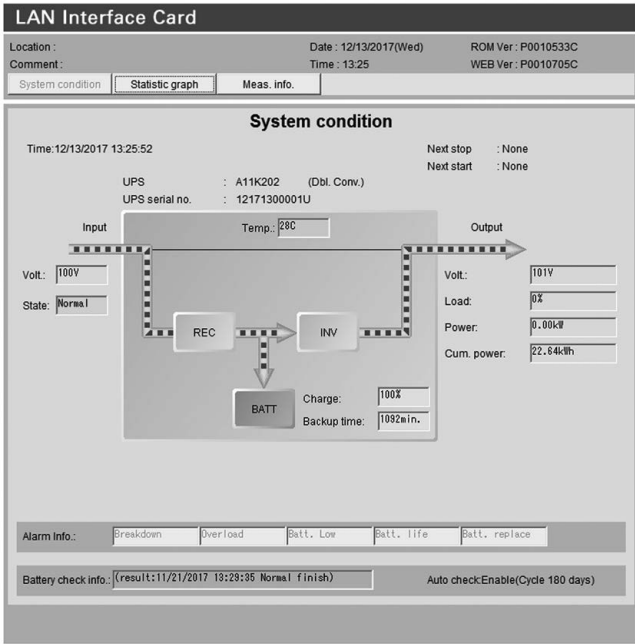


Fig. 3: Web display tool

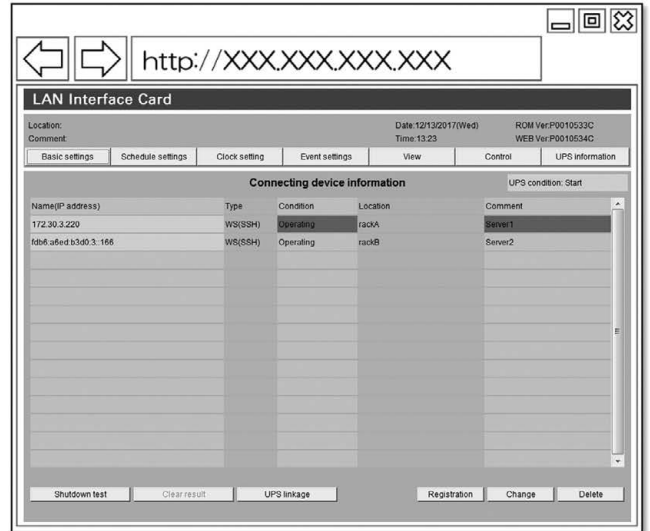
3. Overview of Java Web Start

As mentioned at the outset, it is becoming difficult to use applications that operate on web browsers.

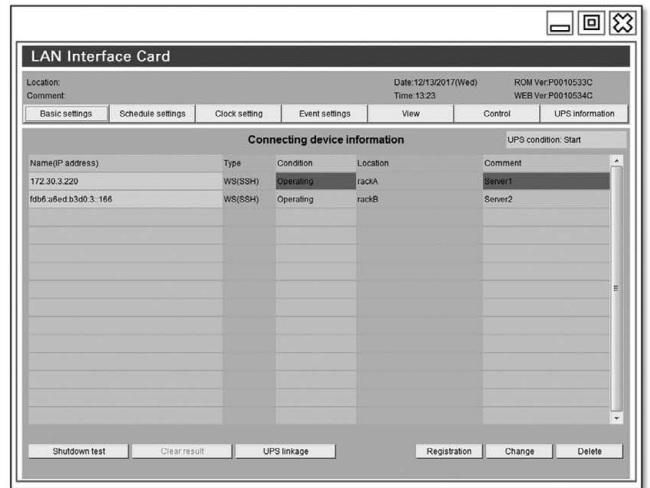
Java Web Start deals with this issue by running programs as application, whereas Java applet runs programs on a web browser. With this, it is possible to use the same Web management tool and Web display tool as with Java applet while maintaining cross-browser usability.

Moreover, as the screen layout has not changed, existing customers already familiar with SANYO DENKI's power management products and the tools can use Java Web Start applications with ease.

Figure 4 shows one image depicting the Web management tool via Java applet and another image via Java Web Start.



Java Applet
Screen is displayed on a web browser



Java Web Start
Web management or display tool is opened as one application

Fig. 4: The display images of Java Applet and Java Web Start

4. Features of Java Web Start

4.1 How to use the Web management tool and Web display tool

Below is the procedure for displaying the Web management tool of power management products equipped with Java Web Start. Figure 5 provides a diagram to accompany the procedure.

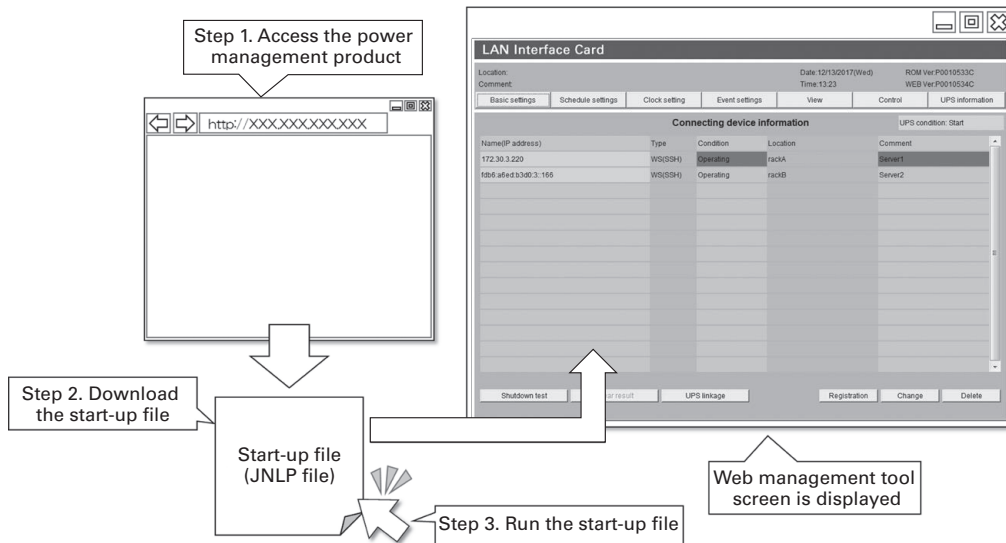


Fig. 5: Steps for displaying the Web management tool using Java Web Start

- Step 1: Access the power management product from a web browser
- Step 2: Download the Web management tool's start-up file (JNLP file)
- Step 3: Run the start-up file to launch the Web management tool

In Step 1, the user downloads a start-up file via web browser to launch the Web management tool in Java Web Start. Because no applications are executed in a web browser, it is also possible to launch the Web management tool on web browsers other than Internet Explorer (Google Chrome, Firefox, Microsoft Edge, etc.).

Save startup file downloaded in Step 2, then simply double-click the file to launch the Web management tool. There is no need to first open a web browser. Thanks to this feature, power management products can be used with greater simplicity, as there is no need to run a web browser to open the Web management tool.

These steps and features are the same for the Web display tool.

4.2 Continued support of Java applet

Just as before, the Web management tool and Web display tool can be launched via Java applet even for Java Web Start equipped products. This feature means customers who must use Java applet for operational purposes are also supported.

5. Products Targeted by This Development

Table 1 lists the power management products equipped with Java Web Start as a result of this development.

Table 1: List of power management products equipped with Java Web Start

Product name	Model number
LAN Interface Card (IPv6-compatible)	PRLANIF011, PRLANIF012, PRLANIF013, PRLANIF014, PRLANADP011, PRLANADP012, PRLANBOX011, PRLANBOX012
LAN Interface Card (not IPv6 compatible)	PRLANIF003, PRLANIF004, PRLANIF005, PRLANIF006, PRLANADP001, PRLANADP002, PRLANBOX001, PRLANBOX002
LAN Interface Card (100BASE-TX/10BASE-T-compatible)	PRLANIF001, PRLANIF002, PRE11A01, etc.
LAN Interface Card (10BASE-T only)	PRASC04C, PRASD01, PRASE03, etc.
SANUPS SOFTWARE Ver.3	PMS50B00, PMS51B00, etc.
SANUPS SOFTWARE Ver.2	PMS40H00, PMS41H00, etc.
SANUPS T11A/T11B	T11A152A001R, T11A202A002R, T11B152A001R, T11B402A002R, etc.
SANUPS MT15A/MT15B	MT15AW03, MT15BW03, etc.
SANUPS IT Monitor	EV01W02
SANUPS PV Monitor Type C	PVMBC21
SANUPS PV Monitor E Model	PVMB011
SANUPS PV Monitor	PVMB001B
SANUPS Monitor K	SMON-K-001

As mentioned above, Java applet is no longer recommended for use as of Java 9. For this reason, we extended this development even to the products no longer available for sale so that our customers currently using our power management products can continue using them with confidence after Java 9's release.

If existing customers update their power management product's program, they will be able to use Java Web Start, and can continue using their product even after Java 9's release.

6. Specifications

Table 2 shows the software required to use Java Web Start for displaying the Web management tool and Web display tool.

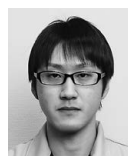
Table 2: Required software

Software	Description
Java	Required to use Java Web Start. Version 7 or later.
Web browser	Required to download the start-up file. Compatible with web browsers such as Internet Explorer, Google Chrome, Firefox and Microsoft Edge. If Internet Explorer, must be Version 8 or later.

7. Conclusion

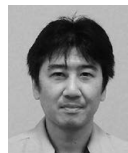
This article has provided an overview of SANYO DENKI's development of web applications for power management products. As a result of this development, it is now possible to use Java Web Start on power management products, allowing our customers to use such products even after the release of Java 9.

Web technology is evolving daily. SANYO DENKI will continue moving forward with product development by quickly identifying changes and applying advanced technologies in our products.



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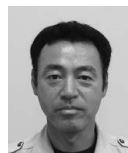
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