Sparkle Pharo IDE
for GemStone/S 64 Bit™

DRAFT ReadMe and Install Guide

Version 1.0 Alpha

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DRAFT ReadMe and Install Guide for 1.0 Alpha

Overview

Sparkle 1.0 Alpha is a development version of the Pharo IDE for GemStone project, which provides GemStone development tools in the Pharo client Smalltalk environment.

This initial version of Sparkle provides a very limited set of development tools:

▸ a login dialog, allowing you to create login configuration parameters and login; you may also edit, persist, and restore the login configurations.

▸ Object inspectors, allowing you to examine the contents of GemStone server objects.

▸ a debugger, allowing you to view the debugger call stack and examine objects.

Sparkle is under active development and information in this document is likely become out of date without notice.

See the project on github: https://github.com/GemTalk/Sparkle

Requirements

With Sparkle, you must use GemStone/S 64™ Bit v3.7, which has some additional features that are required for Sparkle support. v3.7 is not released as of April 7, 2021, but alpha builds are available.

You should have GemStone v3.7 installed on a supported Linux server, with a Stone running and available for use.

Sparkle is supported with recent builds of Pharo 9. For the Pharo client, you should have a Windows or Linux environment in which you will install Pharo.

Pharo 9 is under active development and not all updates are stable. The current build in use is documented here: https://github.com/GemTalk/Sparkle/wiki#current-pharo-build. These instructions use the build number 1212.

GemStone Server Installation on Linux

Install GemStone

1. Install GemStone/S 64 Bit v3.7. Note that v3.7 is under active development; versions other than the most recent may not work correctly.

2. Start a v3.7 Stone.

Clone Sparkle from GitHub

1. Create or choose a directory for Git clones, and set the environment variable $ROWAN_PROJECTS_HOME to point at that directory.

2. Clone https://github.com/GemTalk/Sparkle.git to ROWAN_PROJECTS_HOME/Sparkle

Install into GemStone on Linux

1. Go to a command shell that:
   - has defined $GEMSTONE to the GemStone/S 64 Bit v3.7 installation directory,
   - has $GEMSTONE/bin on the $PATH, and
   - has $ROWAN_PROJECTS_HOME defined.

2. Change to the Sparkle GemStone directory:

   ```
   cd $ROWAN_PROJECTS_HOME/Sparkle/src-gs
   ```

3. Edit `loginSystemUser.topaz` to have the correct Stone name, and the password for SystemUser is set for your Stone.

4. execute the installation script:

   ```
   ./bootstrapSparkle.sh
   ```

   The result of the "errorcount" at the end of the output should be 0.

Sparkle is now installed in the GemStone server.

Client Installation on Windows or Linux

The following instructions are for the Sparkle client, which can be run on Windows or Linux.

Pharo Installation

1. Download the installer for the given platform from https://pharo.org/download, and install.

2. Run PharoLauncher to open the Launcher.

3. Click on ✳ **New**.

4. In the Template Category list, select **Pharo 9.0 (development version)**. Note that the desired download is not under Official Distributions.

5. Select the specific build (currently 1212); this may require scrolling through more recent build numbers. Be sure you select the 64-bit image.

6. Select ✳ **Create image**. This will create a new Pharo image based on the selected template.

7. Use the right-click menu item ▶ **Launch** to launch the image.

Clone Sparkle from GitHub

On the client, you need to clone RemoteServiceReplication in addition to Sparkle.

1. Create or choose a directory for Git clones, and set the environment variable %ROWAN_PROJECTS_HOME% to point at that directory.

2. Clone https://github.com/GemTalk/RemoteServiceReplication.git to ROWAN_PROJECTS_HOME/RemoteServiceReplication

3. If you have not already done so as part of the server installation, clone https://github.com/GemTalk/Sparkle.git to ROWAN_PROJECTS_HOME/Sparkle

4. If you will login using GCI as well as direct login, clone https://github.com/GemTalk/SparkleFFI.git to ROWAN_PROJECTS_HOME/Sparkle

Install Sparkle in Pharo

1. Ensure that the `%ROWAN_PROJECTS_HOME%` or `$ROWAN_PROJECTS_HOME` environment variable is defined in the environment from which the Pharo VM will be launched.

2. Launch the Pharo 9.0 build 1212 image.

3. Open the Settings Browser using **Pharo > Settings**, select **Appearance**, and expand the list. Change the **UserInterfaceTheme** to "Pharo Dark." Sparkle is not yet themed and some color combinations are difficult to read in the light theme.

4. Open Iceberg using **Browse > Iceberg**.

5. In the Iceberg repository list window, click **+ Add** in the upper right.

6. Select **Import from existing clone**.

7. Click the folder icon to open a file selection dialog, and navigate to `%ROWAN_PROJECTS_HOME%\Sparkle` or `$ROWAN_PROJECTS_HOME/Sparkle`. Click OK.

8. Click on the OK button. Sparkle should appear in the Iceberg repository list.

9. Double-click on Sparkle to bring up the dialog titled "Working copy of Sparkle".

10. Right click on the item `BaselineOfSparkle` and select **Metacello > Install Baseline (default)**. (Not **Load**). Sparkle will load what it requires from the RemoteServiceReplication as well as Sparkle.

11. Save the image.

Login and Logout

Logging in using Direct

Login is a two-step process; you will launch a listening Gem on the GemStone server on Linux, and connect to this Gem from the Pharo client image on Windows.

In the Linux server environment, launch a gem that will listen for a connection from Pharo

> *Warning*
> *This step will launch a gem that will listen for a connection on port 29299. At present, there is no security on that port.*

1. Edit `$ROWAN_PROJECTS_HOME/Sparkle/src-gs/login.topaz` to have the correct stone name, user name, and password. You can use an unprivileged user for this, such as DataCurator. SystemUser is only required for installation.

2.   Execute the listening gem launch script:

    ```
    ./server.sh
    ```

    You should see a "Starting to listen" message.

On the Pharo client, connect to the listening Gem

1. Open the Sparkle Connection Launcher window using the **Browse > Sparkle Connections Launcher** menu item.

2. Select the **Direct** tab on the right pane. Enter the **Connection Name** (this is for identification).

3. In the field below **Host:**, enter the hostname or IP address of the server host. Do not change the listening port, 29299, which is defined by the listening Gem on the server.

4. Click **+ Add** to add the new profile to your list of profiles.

5. Click the **Connect** button. A Sparkle Object Explorer window on nil will open.

Logging in using GCI

Login using the GCI interface does not require a listening Gem on the server. However, you must have the GCI libraries available in the `clientlibs` directory.

Install clientlibs on the client host

In addition to the GemStone product distribution itself, GemTalk distributes clientlibs for v3.7. This directory tree packages the essential shared libraries, which are a subset of the libraries files that are included in the GemStone distribution for Linux or the GemStone Client distribution for Windows, in a way that can easily handle multiple versions of GemStone without complicated management in the client host environment.

With Sparkle, you must use this `clientlibs` structure, rather than the libraries in a regular product or client distribution.

1. Copy the clientlibs directory tree from the distribution area, to a location on the client host file system.

On the Pharo client, enter connection parameters and connect

1. Open the Sparkle Connection Launcher window using the **Browse > Sparkle Connections Launcher** menu item.

2. Select the **GCI** tab on the right pane. Enter the following fields:

   Connection Name — a unique identifier for this connection.

   Host — the name or IP of the host that the Stone is on, and on which the Gem will be run.

   Port — select an unused port number on the Stone's host.

   Version — 3.7.0

   Stone — the name of the running Stone.

   NetIdi: the name or port number of the NetLDI on the Stone's host.

   User — the GemStone user name, such as DataCurator.

   Password — the password for the GemStone user.

   Client Libraries Path — the path to `clientlibs` root directory. The connection will look within this directory structure for the correct version and the 64-bit (or 32-bit) libraries.

   Set Path — opens a dialog allowing you to navigate to the `clientlibs` directory.

3. Click **+ Add** to add the new profile to your list of profiles.

4. Click the **Connect** button. A Sparkle Object Explorer window on nil will open.

Inspecting objects and debugging

To execute code and inspect the results, enter a GemStone Smalltalk expression in the lower Evaluator pane, and accept (Ctrl-S). The window will split, with the inspector pane appearing on the right, with a green header.

Selecting fields within this objects will add panes to the right, containing inspectors on each objects that is selected.

If an error occurs in the executed code, a stack pane, with a red header, will appear on the right instead of an inspector.

Selecting frames within this stack adds panes to the right, containing the frame variables and method source for each selected frame. To see the variables, expand the drop town immediately under the header.

Logging out

To logout, click the **Disconnect** button in the **Sparkle Connect** window. This will close the Sparkle Object Explorer and any other open server windows. You will need to restart the listening Gem on the server to login again.