Software/Tool Comparison Worksheet

Criteria	Evaluation
Name	**Specify 6 (Rel. 6.6.05, 3/2017)** **Specify 7 for the Web (Rel. 7.2, 3/2017)**
Website/Contact	http://www.specifysoftware.org Specify Software Project Biodiversity Institute, University of Kansas 1345 Jayhawk Boulevard, Lawrence, KS USA 66045 Helpdesk: +1 785-864-4400 (9-5 U.S. Central Time, UTC -5, -6), support@specifysoftware.org, and via Skype.
Description	Specify 6 is a robust specimen data processing platform for biological research collections. It is open-source and installable on Mac OS, Windows and Linux desktops. It uses MySQL as its data manager with a comprehensive database schema which accommodates data types and workflows for specimen data digitization and collection curation and management. Specify has a highly-customizable user interface which can be tailored to look identical across operating systems, an embedded label and report writer for highly formatted printed output, and capabilities for express search, structured queries, tree-structured data visualization. With a community-derived database design, Specify easily handles specimen information and museum transaction information across all taxonomic classes. A single installation of Specify can be configured for one collection or for multiple collections within an institution. The Specify Project provides related helpdesk and technical services. Specify 7 includes most of the functions as Specify 6 but is built as a web application that operates completely within a web browser. The Specify 7 server is supported for Linux and can be hosted by the institution itself or the Specify Project offers SpecifyCloud, a Specify 7 hosting service for collections who prefer not to deal with software and hardware installations.
(Specify 6) **Computer hardware** **Operating system** **Supplementary software**	MAC OS X 10.7.3 “Lion” or later Core i5 or later 2 GB RAM preferred, 1 GB RAM min. Java 8 Runtime "JRE 8" Oracle MySQL 5.5 or later ~125 MB disk space for Specify installation ~250 MB disk space for MySQL installation

	~1 MB for 500 specimen records (~1 GB for 500,000 records) 1440×900 or 1280×1024 screen resolution preferred, 1024×768 minimum, dual screens of about 23″ or one screen of 25-30″ is optimal. Windows (7, 8, 10) Any processor less than 4-5 years old 2 GB RAM preferred, 1 GB RAM min. Java 8 Runtime "JRE 8" Oracle MySQL 5.5 or later ~175 MB disk space for Specify installation ~150 MB disk space for MySQL installation ~100 MB disk space for Java installation ~1 MB for 500 specimen records (~1 GB for 500,000 records) 1280×1024 screen resolution preferred, 1024×768 minimum, dual screens of about 23" or one screen of 25-30" is optimal. Linux Any processor less than 4-5 years old Tested and supported on Ubuntu and Fedora 2 GB RAM preferred, 1 GB RAM min. Java 8 Runtime "JRE 8" MySQL 5.5 or later ~150 MB disk space for Specify installation ~100 MB disk space for MySQL installation ~100 MB disk space for Java installation ~1 MB for 500 Collection Object records (~1 GB for 500,000 records) 1280×1024 screen resolution preferred, 1024×768 minimum, dual screens of about 23" or one screen of 25-30" is optimal. Specify 6 stores its data in a MySQL database. All three operating systems require the installation of the Java "JRE" (note: not the Java browser plug-in) as well as MySQL server either on a local workstation or shared database server. Specify 7 requires a Linux server for the MySQL database, a web server and application server which can all be the same machine. Using Specify 7 requires a web browser on any platform. SpecifyCloud requires only a web browser on any platform.
Additional hardware required	None

Features	An attractive, highly-customizable user interface, adaptable to any biological collection type, including choice and labeling of fields, customizable pick lists, form and grid views, and other interface design and layout options. Client-server architecture allowing multiple clients to access a shared, server-installed database. Data from multiple multiple collections can be managed in a single MySQL database or in separate databases. Automatic Specify software updates through network push (Specify 6). Comprehensive security and permission control, for managing multiple users with varying levels of access and authority. Includes an embedded report system for highly-designed specimen labels and reports. An integrated Specify Workbench module which facilitates entering, batch uploading, validating and cleaning data before being imported into the database, offering the following capabilities: ● Importing data from external CSV or MS Excel files ● Linking images or other attachment types to records ● Workbench editing in grid (datasheet) or form view ● Mapping georeferenced locations ● Converting/standardizing latitude and longitude formats Specify embeds GeoLocate from Tulane University, an online locality georeferencing service. Several related stand-alone applications are included with Specify 6, e.g.: ● Specify Setup Wizard creates a new Specify database. ● Specify Data Exporter is used to build, update, and export data files for use by third parties (such as Darwin Core files for distribution to GBIF), ● Specify Backup and Restore allows IT personnel to backup and restore a Specify database to a MySQL location on a server or local disk ● Specify iReport works with Specify queries to design and print custom labels and reports.

	Includes plug-in support for Lifemapper, a biodiversity geospatial data modeling, visualization, and analysis platform. As of 2017, Specify is used by approximately 420 biological collections, worldwide. An extensive help document (~400 pages) is available for download for Specify 6 through the Specify website, along with recorded tutorial videos. A downloadable installation guide for implementing Specify using the Setup Wizard is available on the Specify website. Project helpdesk, technical and conversion services available. Dedicated helpdesk phone +1 785-864-4400 (U.S. Central Time, UTC -5, -6)
Longevity	Specify 6 was released in 2008. Earlier versions date to 1999. Specify is spawn of the MUSE Software Project which began in 1986. Together MUSE and Specify have delivered 31 years of collections community software support. Specify 7 for the web was first released in January 2015, and has several upgrades.
Initial cost	No licensing fees, source and compiled versions are free.
Maintenance cost	There is no cost to use Specify 6, 7, or SpecifyCloud. Local database server installations required for Specify 6 and Specify 7 usually require IT support for server administration, hardware maintenance, security updates, backups, etc. SpecifyCloud services include IT support, hardware maintenance, security updates, and backups.
Ease of setup/installation prerequisite skills	There are two protocols for Specify 6 installations: one for stand-alone workstations, and another for LAN or campus database server configurations. Workstation installs require downloading and installation of MySQL, Java Runtime software, and Specify. With provided documentation most technically savvy researchers should be able to run the installer packages and configure the setup. Server installs are also supported with documentation but require more knowledge of IP addresses, user account management and general database server administration. An IT support person would be able to install and configure this conformation. Installable packages are available from the project web site: www.specifysoftware.org.

	Specify 7 installations require the assistance of an IT server professional, but guides are provided on the Specify 7 Github web site: github.com/specify/specify7. SpecifyCloud requires no setup or installation on the user end.
Continuing IT support required?	Specify 6 Installation on a single, standalone workstation requires little IT management. There may be occasional troubleshooting or configuration options. Server-based installations typically require a modest amount of continuing IT support for server maintenance, security updates, backups, etc. Specify 7 installations require a server administrator for occasional troubleshooting, security updates, backups. SpecifyCloud usage has no need for continuing IT support, the Specify Project provides server administration.
Special skills required for maintenance	Once installed and connected to the MySQL database, maintenance of the Specify 6 software is minimal. Automatic updates from the Project are presented at startup and are easily absorbed. Server installations (6 or 7) will require IT skills as described above.
Challenges	Specify 6 is a "thick" client optimized to operate on desktop computers and on LAN or campus database servers. It is not designed to work over the internet with remote databases; performance degrades significantly in that configuration. Collection scientists may have difficulty installing and setting up the Specify 6 workstation version due to the need for a basic technical understanding of MySQL installations. Installation of MySQL for Specify 6 on a local or campus MySQL server computer will likely require IT assistance, and account credentials on the server. It is recommended that new users and installations contact the Specify Project for advice on installation configuration and options. Installing Specify 7 will require an experienced Linux systems administrator or developer. Installing the Specify Web Portal and Attachment/Asset server modules is best done by experienced IT systems staff.
