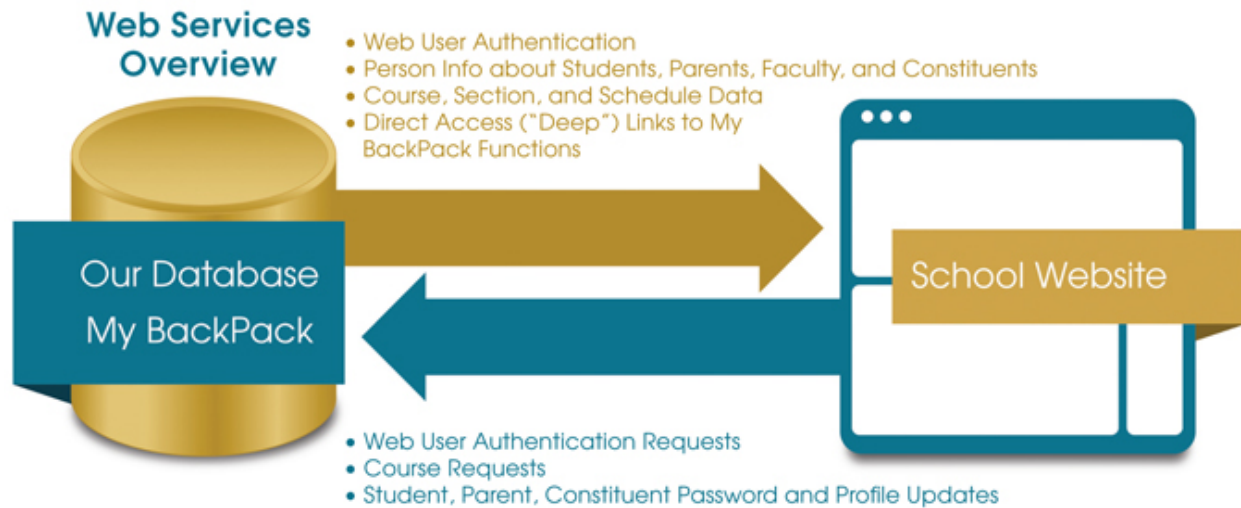


Advantage Web Services Overview

Note: This document is intended for non-technical users and administrators as a high level introduction to Web Services and a general reference. Developers should consult the [Advantage Web Services API Developer's Guide](#).



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Introduction – What Are Web Services?

Web Services provide a mechanism to integrate the information in your Advantage database and My BackPack with your school's website/portal or other custom programs. Web Services applications can be developed by your internal IT department (if they have programming expertise) or by other third-party service providers.

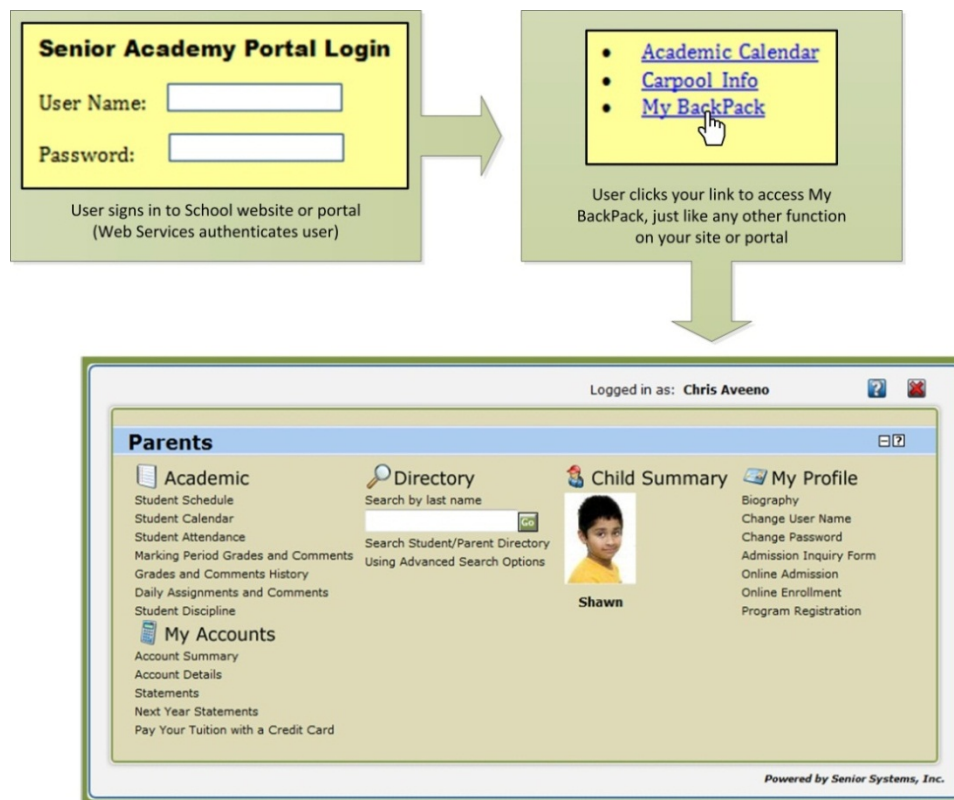
Using an industry standard protocol known as *SOAP*, web services work in conjunction with My BackPack to provide user authentication and current data about students, parents, constituents, faculty, and classes, and to accept course requests and updates to profile data such as addresses and contact information. By exchanging information frequently, your website or custom program can stay in sync with your Advantage database, enabling almost seamless real-time integration. All data exchanges are encrypted for security.

Applications – How Do Schools Use Web Services?

Each school implements web services in a different way, but here are some of the most common uses:

Single Sign On

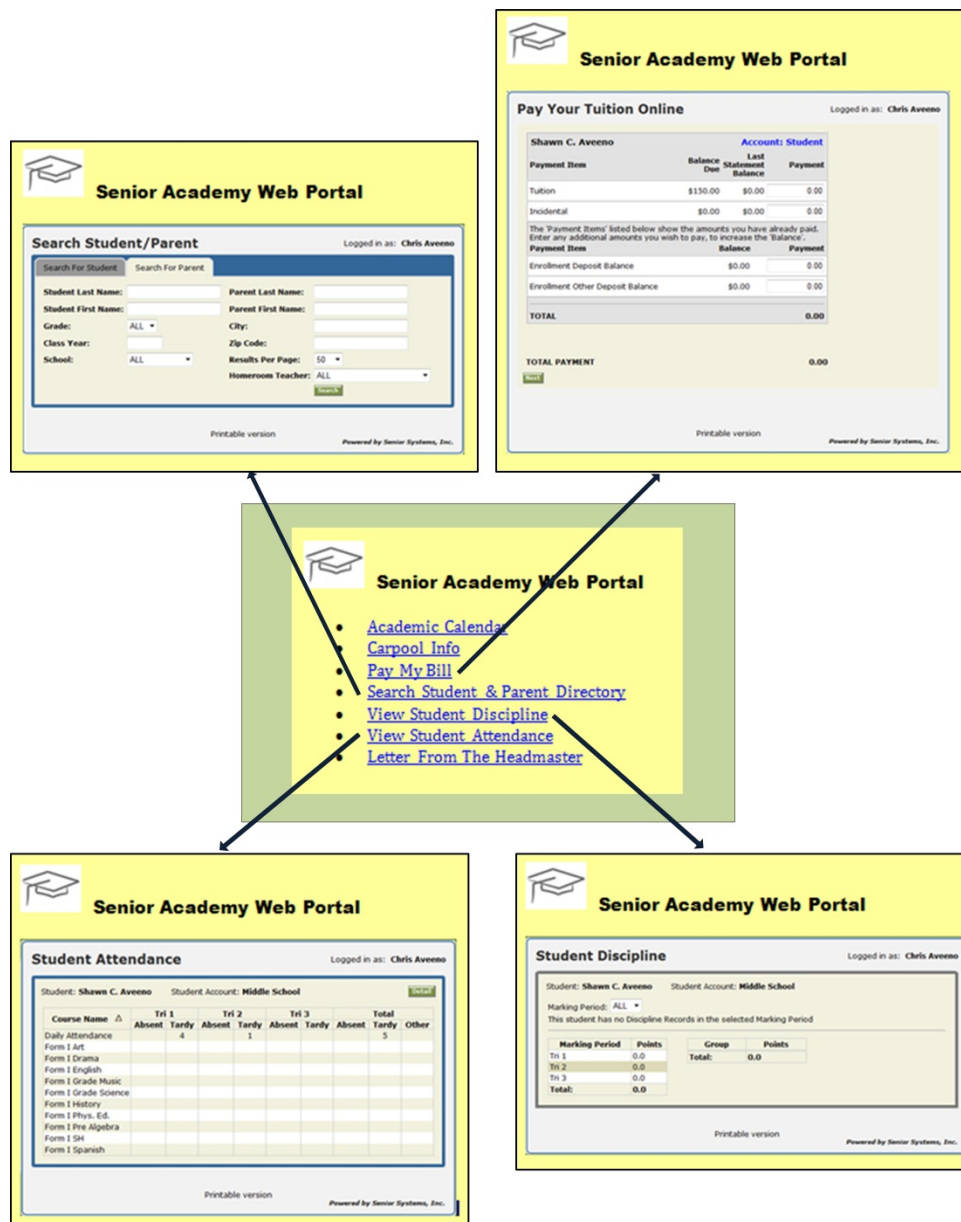
The most common application for Web Services is to facilitate 'single sign on' capabilities with your school's website or portal and My BackPack. This means that parents, students, alumni, and faculty can sign in to your school's website or portal, and from a link on your site, can go directly to their My BackPack accounts without having to sign in again. This saves time and reduces confusion for users, while minimizing password support calls.



Deep Linking

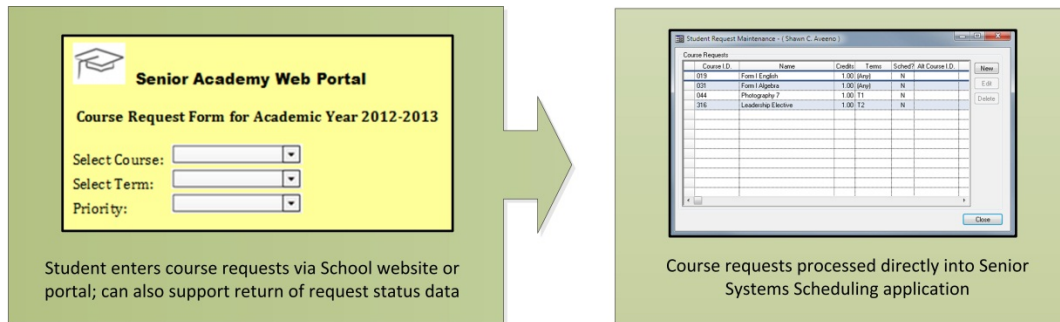
Another very popular use for web services is to enable My Backpack pages to be linked directly from and/or embedded into your school's website or portal interface. This allows you to customize some of the My Backpack interface and to integrate My Backpack functions with other options and functionality that you provide to your website or portal users. In order to make this work, you will also need to implement the single sign on feature as described previously.

For example, you might have your own menu of user functions, some of which are actually links to specific My Backpack functions, and some of which are other functions provided by your custom programs. The frame and navigation links for My Backpack can optionally be suppressed so that the My Backpack functions appear to be just another part of your school's website or portal.



Course Request Custom Applications

Schools who want to have students enter next year course requests online can create custom applications to collect this data and then transmit it directly to the Advantage Scheduling database. This can save time and increase accuracy of data entry for this preliminary part of the scheduling process.



Customized Interfaces

Schools with access to extensive programming resources can develop a completely customized interface for some of the My BackPack functions, incorporating data from the Advantage database with data from other sources and specialized custom interface. In this case, the My BackPack screens are not used at all, and you have complete freedom to design an interaction involving any of the available Web Services data fields. These custom programs must then exchange their data with the Advantage database, so as to keep both in sync.

Custom Output (Directories, Rosters, Schedules, Etc.)

Data from Web Services about students, parents, faculty, and constituents can be used to produce custom output or feed custom reporting applications. You can design a data feed to help create online or printed directories, rosters, schedules, or other customized documents using the most up-to-date information from your Advantage database.

Integration Field List for Web Services

Senior Systems Advantage makes the following fields available for integration via Web Services. The exact fields available to you may depend on your service provider's capabilities.

Person-Related Data

Students

DATA FIELD	ADV SCREEN/TAB LOCATION	WEB SVCS PROPERTY NAME
Student ID	Student > Name	StudentID
Student Group	Student > Name	AcademicGroup
Admissions Year	Student > Name	AdmissionsYr
A/R Group	Student > Name	ARGroup
Enrollment Status	Student > Name	EnrollmentStatus
Current School (Division)	Student > Name	StudentCurrentSchool
Current Grade	Student > Name	StudentCurrentGrade
Next Year Grade	Student > Name	StudentNextGrade
First Name	Student > Name	FirstName
Middle Name	Student > Name	MiddleName
Last Name	Student > Name	LastName
Suffix	Student > Name	Suffix
Preferred Name	Student > Name	PrefferedName
Full Name	Student > Name	FullName
Birth Date	Student > Name	BirthDate
Gender	Student > Name	Gender
Family ID	Student > Address	FamilyID
Faculty Advisor ID	Student > Info1	FacultyAdvisorID
Homeroom	Student > Info1	HomeRoom
Homeroom Teacher ID	Student > Info1	HomeRoomTeacherID
Locker Block	Student > Info1	LockerBlock
Locker Number	Student > Info1	LockerNumber
Lock Number	Student > Info1	LockNumber
Email Address	Student > Info2	StudentEmail
Web ID	Student > Web ID	WebUserID
*Addresses	Student > Address	Address

Parents

DATA FIELD	ADV SCREEN/TAB LOCATION	WEB SVCS PROPERTY NAME
Parent Type (P1, P2)	Student > Address	ParentType
Parent Name # (Name 1 or 2)	Address > Parent/Guardian	ParentNameGroup
Title	Address > Parent/Guardian	Title
First Name	Address > Parent/Guardian	FirstName
Middle Name	Address > Parent/Guardian	MiddleName
Last Name	Address > Parent/Guardian	LastName
Suffix	Address > Parent/Guardian	Suffix
Preferred Name	Address > Parent/Guardian	PrefferedName
Family ID	Student > Address	FamilyID
Web ID	Address > Parent/Guardian	WebUserID

Children (Student IDs)	Web User Maintenance	Students
Academic Access (Student IDs)	Web User Maintenance	StudentsAcademicAccess
*Addresses	Student > Address > Address	Address

Faculty

DATA FIELD	ADV SCREEN/TAB LOCATION	WEB SVCS PROPERTY NAME
Faculty ID	Faculty > Name	FacultyID
Title	Faculty > Name	Title
First Name	Faculty > Name	FirstName
Middle Name	Faculty > Name	MiddleName
Last Name	Faculty > Name	LastName
Suffix	Faculty > Name	Suffix
Internal Telephone No	Faculty > Name	InternalTelNo
Hire Date	Faculty > Employment	HireDate
Job Title	Faculty > Employment	JobTitle
Location	Faculty > Employment	Location
Department ID	Faculty > Employment	DepartmentID
Department Name	Faculty > Employment	DepartmentName
*Education		
Class Year	Faculty > Education/Cert	FacultyEducation.ClassYear
Degree	Faculty > Education/Cert	FacultyEducation.Degree
Graduation Type	Faculty > Education/Cert	FacultyEducation.GraduationType
Major	Faculty > Education/Cert	FacultyEducation.Major
School Name	Faculty > Education/Cert	FacultyEducation.SchoolName
Web ID	Faculty > Web ID	WebUserID
*Address	Address > Address	Address

Constituents

DATA FIELD	ADV SCREEN/TAB LOCATION	WEB SVCS PROPERTY NAME
Constituent ID	Constituent > Name	ConstituentID
Class Year	Constituent > Name	ConstituentClassYr
Constituent Type (O, P, S)	Constituent Search/New	ConstituentType
Lost/Deceased?	Constituent >	ConstituentLostDeceased
Primary Constituency	Constituent > Name	ConstituentPrimaryConstituency
*Constituencies		Constituency
Constituency Group	Constituency Type Maintenance	ConstituencyGroup
Constituency Name	Constituent > Name	ConstituencyName
From/To Date	Constituent > Name	DateFrom, DateTo
Primary?	Constituent > Name	IsPrimaryConstituency
Title	Constituent > Name	Title
First Name	Constituent > Name	FirstName
Middle Name	Constituent > Name	MiddleName
Last Name	Constituent > Name	LastName
Suffix	Constituent > Name	Suffix
Preferred Name	Constituent > Name	PrefferedName
Maiden Name	Constituent > Name	MaidenName
Gender	Constituent > Name	Gender
Spouse	Constituent > Name	Spouse
Home Page	Constituent > Info	HomePage
*Education		
Class Year	Constituent > Education	ConstituentEducation.ClassYear
Concentration	Constituent > Education	ConstituentEducation.Concentration
Degree	Constituent > Education	ConstituentEducation.Degree
Graduation Type	Constituent > Education	ConstituentEducation.GraduationType
NotPublish	Constituent > Education	ConstituentEducation.NotPublish
School Name	Constituent > Education	ConstituentEducation.SchoolName
Web ID	Constituent > Web ID	WebUserID
*Addresses	Constituent > Address > Address	Address

Addresses (Available Fields Depend on Role(s) and Address Type(s))

DATA FIELD	ADV SCREEN/TAB LOCATION	WEB SVCS PROPERTY NAME
Address Code	Address	AddressCode
Active	Address	IsActive
Address Line (1,2,3)	Address > Address	Address1, 2, 3
DNP Address Lines	Address > Address	NotPublishAddressLines
City	Address > Address	City
State	Address > Address	State
Zip Code	Address > Address	Zip
DNP City State Zip	Address > Address	NotPublishCityStateZip
Country	Address > Address	Country
DNP Country	Address > Address	NotPublishCountry
Telephone	Address > Address	Phone
DNP Telephone	Address > Address	NotPublishPhone
Other Telephone (1,2,3,4)	Address > Address	OtherNumber1, 2, 3, 4
DNP Other (1,2,3,4)	Address > Address	NotPublishOtherNumber1, 2, 3, 4
Email Address (1,2)	Address > Address	Email1, Email2
Email DNP (1,2)	Address > Address	NotPublishEmail1, 2
DNP Address	Address > Address	NotPublishEntireAddress
Address Type	Address > General	AddressType
Active From/To	Address > General	ActiveFromDate, ActiveToDate
Primary	Address > General	IsPrimaryAddress
Bill Code	Address > Address	BillCode
Send Grades	Address > Address	IsSendGrades
Emergency Contact	Address > General	IsEmergencyContact
Additional Contact (Z)	Address	AdditionalContactInfo
Company Name	Address > Occupation	CompanyName
DNP Company	Address > Occupation	NotPublishCompany
Industry	Address > Occupation	Industry
Occupation	Address > Occupation	Occupation
Job Title	Address > Occupation	JobTitle
Notes (Work Address)	Address > Occupation	Notes

NOTES REGARDING ADDRESS/EMAIL/PHONE FOR FACULTY USERS

Normally, if a Faculty user is also a Parent or Constituent, the address, phone, and email fields are taken from his/her Parent or Constituent address record, although this behavior can be changed with a programming option. For Faculty only users, limited address information is maintained by the system. Address, email and phone numbers are taken from the Address tab in Faculty Maintenance.

Academic Data

Schools/Divisions

DATA FIELD	ADV SCREEN/TAB LOCATION	WEB SVCS PROPERTY NAME
School ID	Define Schools	SchoolID
School Name	Define Schools	SchoolName
Academic?	Define Schools	IsAcademicSchool
Summer?	Define Schools	IsSummerSchool
Current Academic Year	Admin Maintenance > Schools	CurrentAcademicYear

Terms

DATA FIELD	ADV SCREEN/TAB LOCATION	WEB SVCS PROPERTY NAME
Number	Admin Maintenance > Terms	TermID
Name	Admin Maintenance > Terms	Name
Abbreviation	Admin Maintenance > Terms	Abbreviation

Marking Periods

DATA FIELD	ADV SCREEN/TAB LOCATION	WEB SVCS PROPERTY NAME
Number	Admin Maintenance > Marking Per.	ID
Name	Admin Maintenance > Marking Per.	Name
Abbreviation	Admin Maintenance > Marking Per.	Abbreviation
Term	Admin Maintenance > Marking Per.	TermID

School Days

DATA FIELD	ADV SCREEN/TAB LOCATION	WEB SVCS PROPERTY NAME
Day Number	Admin Maintenance > Calendar	DayNumber
Day Name	Admin Maintenance > Calendar	DayName
Abbreviation 6	Admin Maintenance > Calendar	Abbreviation3
Abbreviation 2	Admin Maintenance > Calendar	Abbreviation1

Departments

DATA FIELD	ADV SCREEN/TAB LOCATION	WEB SVCS PROPERTY NAME
Department ID	Department Maintenance	DepartmentID
Department Name	Department Maintenance	Name

Courses

DATA FIELD	ADV SCREEN/TAB LOCATION	WEB SVCS PROPERTY NAME
Course ID	Course > General	CourseID
Course Name (First Field)	Course > General	CourseName
Course Full Name	Course > General	FullName
Abbreviation	Course > General	Abbreviation
Department	Course > General	Department
Division	Course > General	SchoolID
Description	Course > Comments	Description

Sections

DATA FIELD	ADV SCREEN/TAB LOCATION	WEB SVCS PROPERTY NAME
Course ID	Section > General	CourseID
Section ID	Section > General	SectionID
Meets Terms	Section > Schedule	MeetTerms
Faculty	Section > General	FacutlyIDs

Schedule Lines

DATA FIELD	ADV SCREEN/TAB LOCATION	WEB SVCS PROPERTY NAME
Section ID	Section > General	SectionID
Day	Section > Schedule	DayNumber, DayName
Period	Section > Schedule	BlockNumber, BlockName
Time	Section > Schedule	StartTime, EndTime
Room	Section > Schedule	Room

Course Requests

DATA FIELD	ADV SCREEN/TAB LOCATION	WEB SVCS PROPERTY NAME
Course ID	Request > Request	CourseID
Terms Desired	Request > Request	RequestedTerms
Priority	Request > Request	RequestPriority
Alternate (1,2)	Request > Alternate	CourseIDAlt1, 2
Scheduling Status	Request > Status	Status
Status Date	Request > Status	StatusDate
Scheduled Section	Request > Status	ScheduledSectionID
Status Description	Request > Status	Description






How It Works – The Basics

The Web Services package is installed on a server at your school or, for hosted schools, at the Senior Systems Data Center. In most cases, your developer designs and configures your website/portal or custom program to access the data in the Advantage database in real time, or to make periodic requests to receive any new/updated information and send any recent updates. By making these requests in real time or on a very frequent basis, the two systems can be kept in sync, and the amount of data exchanged each time will be relatively modest. Specific data and update requests can also be made for individual users, based on actions they take or data they enter in your website/portal or custom program, for example, to authenticate a user upon login, or to access/update other specific information about that user.

If you are setting up a single sign-on type of application, or otherwise using web services to authenticate users, a web service request for authentication is made at the time the user logs in by sending the user name and password. If the user is properly authenticated, a special code (known as a “token”) is returned, which enables your website or custom program to continue the user session without having to repeatedly re-send the user name and password. Web services also works with LDAP if you use that method for user authentication (note, however, that LDAP authentication against a school’s local server is not currently possible for hosted schools).

Web Services Organization

There are actually several distinct Web Services, each of which deals with a specific type of data. This is primarily of concern only to developers, but this list briefly explains how the functionality is organized. Each of these services provides for a variety of “methods” (procedures) that your developer can use to get or send data from/to your Advantage database. The Web Services include:

-  **User Management Service**—enables user authentication and password update, and provides access to related information such as security groups
-  **User Profile Service**—accesses user profile data, including biographical data, addresses and contact information, web user account, and details about related spouse and students for a single person; also used to get section data for an individual faculty member
-  **Academic Service**—accesses academic-related data such as classes, sections, schedules, and the school calendar, and provides a mechanism to submit student course requests
-  **Data Export Service**—enables bulk data retrieval of person-related data, including biographical data, addresses and contact information, web user account, and details about related spouse and students for all or a specified set of people
-  **Data Update Service**—provides a mechanism to update user profile data, including addresses and contact information for constituents, students, and parents

How To Get Started

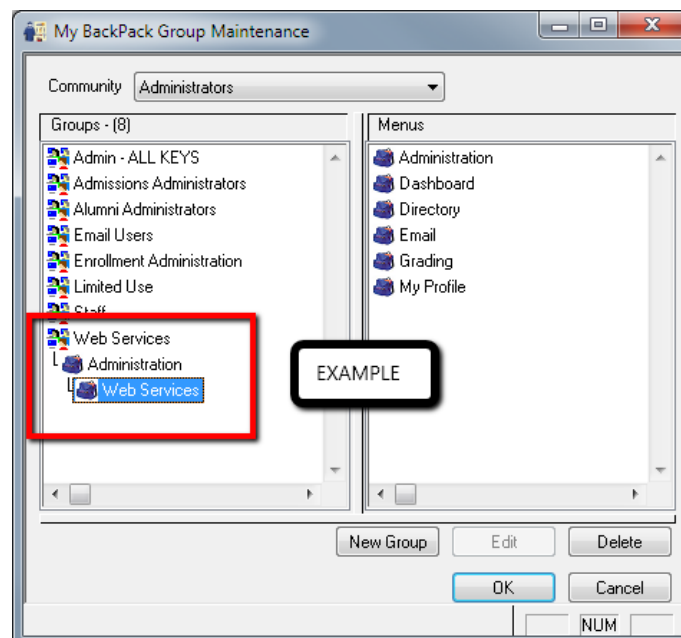
After you purchase Advantage Web Services, there are several steps in the process to get things up and running:

1. If you are a hosted customer, Advantage Web Services is automatically installed for you upon setup or purchase. If your school is not hosted, you will need to contact the Senior Systems Project Coordinator that you have been working with to request that Web Services be installed and enabled for you. You will need to provide a few days advance notice to ensure a smooth setup process.

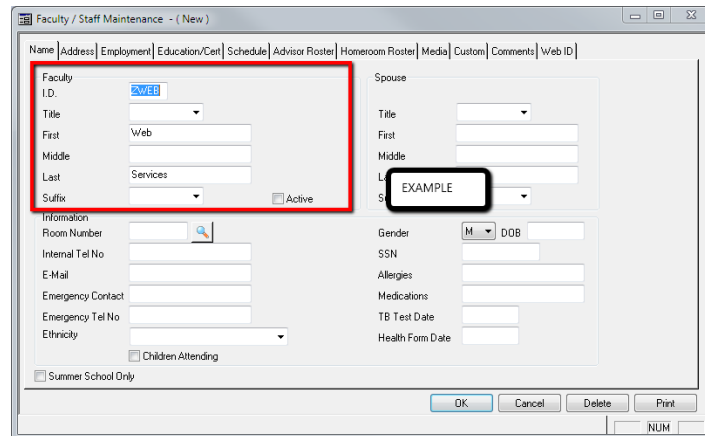
Senior Systems will provide a set of URLs for Web Services and API documentation to your developer. The URLs typically take the form of (where 'localhost' is replaced with the name or IP of the server):

<https://localhost:444/SeniorSystemsWS/AcademicService.asmx>
<https://localhost:444/SeniorSystemsWS/DataExportService.asmx>
<https://localhost:444/SeniorSystemsWS/DataUpdateService.asmx>
<https://localhost:444/SeniorSystemsWS/UserManagementService.asmx>
<https://localhost:444/SeniorSystemsWS/UserProfileService.asmx>

2. A system administrator at your school will need to set up a web user account which your developer can use to access web services. This "user" account is not associated with an actual person, but it provides a secure channel for the external programs to authenticate themselves and retrieve/send data with the Advantage database. Follow these steps to set up the web services user:
 - a. In System Administration, set up an Admin Community security group that allows access to Web Services. It is generally recommended to make a new, separate security group just for Web Services.

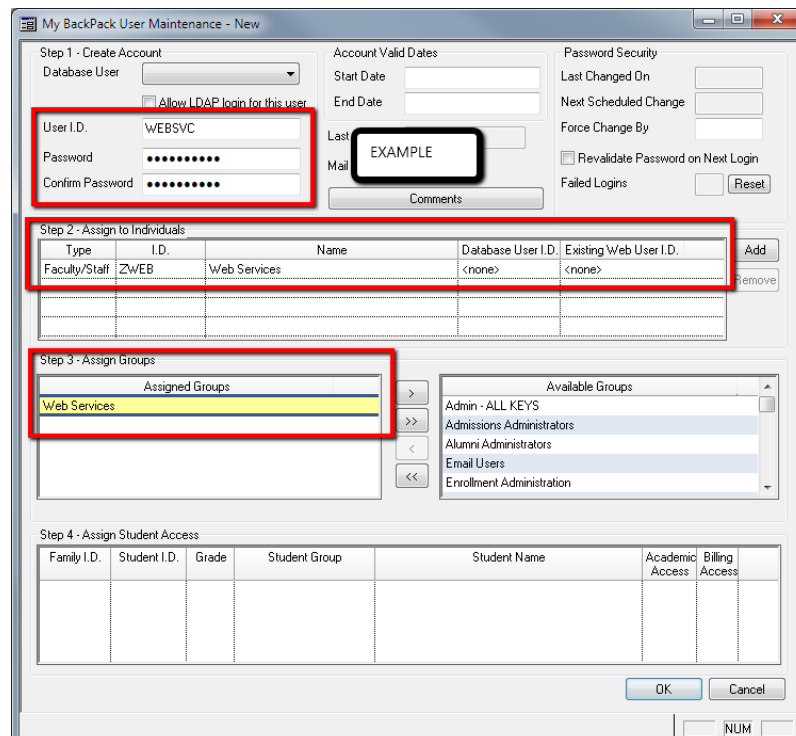


- b. In Registrar or Accounts Receivable > Maintenance > Faculty/Staff, set up a dummy staff record for web services. The only use for this record will be to associate with the web services My Backpack account, so you do not need to fill in any data other than the Faculty ID, however it's a good idea to put some explanatory text in the Name field(s) to avoid later confusion, and to un-check the Active checkbox so the user does not show on most Faculty screens and reports.



The screenshot shows the 'Faculty / Staff Maintenance - (New)' window. The 'Name' tab is selected. The 'Faculty I.D.' field is highlighted with a red box and contains the value 'ZWEB'. The 'Title' dropdown is set to 'Web'. The 'First' field contains 'Web', 'Middle' is empty, and 'Last' contains 'Services'. The 'Suffix' dropdown is set to 'Services'. The 'Active' checkbox is unchecked. The 'Spouse' section is visible with a red box around the 'Last' field containing the value 'EXAMPLE'. Other fields like 'Room Number', 'Internal Tel No', 'E-Mail', 'Emergency Contact', 'Emergency Tel No', 'Ethnicity', 'Gender', 'DOB', 'SSN', 'Allergies', 'Medications', 'TB Test Date', and 'Health Form Date' are also visible.

- c. In System Administration > My Backpack > My Backpack User Maintenance, create a new administrative user and link it to the dummy Faculty record that you created in the previous step. Be sure to assign the new security group that you created above to give the account security access to Web Services.



The screenshot shows the 'My Backpack User Maintenance - New' window. The 'Step 1 - Create Account' section is highlighted with a red box. The 'Database User' dropdown is set to 'WEBSVC'. The 'User I.D.' field contains 'WEBSVC'. The 'Password' and 'Confirm Password' fields are filled with dots. The 'Allow LDAP login for this user' checkbox is unchecked. The 'Account Valid Dates' section shows 'Start Date' and 'End Date' fields. The 'Password Security' section shows 'Last Changed On', 'Next Scheduled Change', 'Force Change By', 'Revalidate Password on Next Login', and 'Failed Logins' fields. The 'Step 2 - Assign to Individuals' section is highlighted with a red box. It shows a table with columns: Type, I.D., Name, Database User I.D., Existing Web User I.D., and Add/Remove buttons. The first row is: Faculty/Staff, ZWEB, Web Services, <none>, <none>. The 'Step 3 - Assign Groups' section is highlighted with a red box. It shows a table with columns: Assigned Groups and Available Groups. The 'Assigned Groups' table has one row: Web Services. The 'Available Groups' table lists: Admin - ALL KEYS, Admissions Administrators, Alumni Administrators, Email Users, and Enrollment Administration. The 'Step 4 - Assign Student Access' section is at the bottom, showing a table with columns: Family I.D., Student I.D., Grade, Student Group, Student Name, Academic Access, and Billing Access.

- d. Give this new user name and password to your developer, who will use it to access data and test programs.

3. Your developer will work with you to design the interface, correctly map the data fields, and test all aspects of the new functionality.
4. Before going operational (for single sign on or deep linking applications), you will need to make sure that your website/portal user names and passwords are synchronized with the My Backpack user names and passwords in the Advantage database. To do this, you must decide which set of user names and passwords you want to use going forward:
 - **If you want your users to use their My Backpack credentials** to log in to your website or portal, you just need to inform your developer. There will be no conversion or setup necessary in Senior Systems Advantage—the developer will simply use Web Services to sync this data. You may need to notify your users that they will now be using their My Backpack credentials to log in to the website or portal.
 - **If you want your users to use their existing website/portal user names and passwords**, you can have Senior Systems convert these into the appropriate new or existing My Backpack user accounts. Note that there is **NO CHARGE FOR THIS CONVERSION**, however you will need to provide the appropriate data in spreadsheet format:

For This Type of User...	...Conversion Spreadsheet Should Contain These Fields
Parents	Parent Name, Family ID, User Name, and Password (if available)
Constituents	Constituent Name, Constituent ID, User Name, and Password (if available)
Faculty	Faculty ID, User Name, and Password (if available)
Students	Student ID, User Name, and Password (if available)

Notes:

- If passwords are not available (for example, because they are encrypted by the website or portal application), then a temporary password will be assigned, and you should instruct users to reset their passwords on first use.
- For parents, constituents, and students, if your website/portal user names follow a certain reproducible structure and you will not be converting passwords, then you may be able to just use the System Administration > My Backpack > Auto Assign Web Users function to create or update the My Backpack accounts, with no Senior Systems conversion services needed. See the My Backpack Administrator's Guide for more information about this function.
- Going forward, for users who are added after your system is operational (for example when new students enroll in your school), the new user names and passwords will be set up in Senior Systems, and the new user will be authenticated via the Web Services interface.

Trouble-Shooting/FAQs

Before calling your developer/third party software provider or Senior Systems Product Support, check this list of Frequently Asked Questions for Web Services:

Q: I've added or I'm going to add new parents and students into my Advantage database. What do I need to do so they will be able to log in to the website/portal?

A: You will need to set up web accounts for the new parents and/or students to assign user names, passwords, and security group(s) for logging in. Generally you can do this in the Advantage applications on a one-by-one basis when adding the new records (look for a Web ID tab and/or the Parent Web Accounts button on the Address tab for students or applicants), or you can use System Administration > My Backpack > Auto Assign Web Users to assign IDs for a group of users all at once. You can also manually set up users via System Administration > My Backpack > My Backpack User Maintenance.

Q: Data was updated in the Advantage database, but is not being reflected in the website/portal OR data was updated in the website/portal, but is not being reflected in the Advantage database. Why is this?

A: The frequency with which data changes are reconciled between the two systems is controlled by the custom application or third party software provider. Although Advantage Web Services are able to support near real-time integration, for performance reasons, many software products only synchronize data on a pre-arranged schedule (e.g. hourly). Check the documentation for your custom application or third party software for the synchronization frequency.

Q: Who do I call when there are problems with my data integration or login access for my website/portal?

A: Generally, your first call will be to the developer or third party software company who created your website/portal, however there are some things you can check to help pinpoint the problem area:

- ✓ Make sure that your My Backpack server is running and available. (If possible, try logging in to My Backpack directly.) If your My Backpack server is down, contact Senior Systems Product Support.
- ✓ Make sure that your SSL certificate has not expired. This can cause problems with access for some third party providers. If your SSL certificate has expired, contact Senior Systems Product Support.
- ✓ If you are using LDAP authentication, make sure that nothing has changed recently with your local LDAP server.
- ✓ If your school is not hosted, make sure that you have been keeping up to date with new releases for the Advantage applications and My Backpack.