Food & Nutrition Service

Guide to USDAs Web-Based Prototype Application

NATIONAL SCHOOL LUNCH & SCHOOL BREAKFAST PROGRAMS $FOOD \ \& \ NUTRITION \ SERVICE$ $U.S. \ DEPARTMENT \ OF \ AGRICULTURE$

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ICON KEY Valuable information Q&A Tech Tip

How to Use this Guide

The "icon key" on the left shows symbols that you will find throughout the manual that emphasize certain pieces of information. "Valuable information" highlights important, take-away messages about the application.

"Q&A" is just as it sounds: a series of questions and answers on a range of topics. And the "Tech Tips" contain information related to the code or other technical aspects of the application.



Navigate with Ease

Use the **Table of Contents** on Page iii to jump directly to where you want to go. Hold down your Control (*Ctrl*) button and click on the section to go directly there.

What if I have questions that are not covered in this guide?



If you have additional questions beyond what is included here, follow your usual process of contacting your State agency, if you are a School Food Authority (SFA), or your FNS Regional Office, if you are a State agency. If you have questions about the functionality or capabilities of your existing online application, please contact your IT department or system vendor. If you have feedback or comments about the FNS web-based prototype application, you can email WebApp@fns.usda.gov.

A Design with a Purpose

An evidence-based design aimed at improving the application process for thousands of school districts and millions of families.

n overwhelming majority of America's school children—roughly 50 million elementary and secondary school students—attend institutions that participate in the U.S. Department of Agriculture's (USDA) school meal programs. Most consume school meals on a regular basis. In total, about 100,000 schools and institutions serve more than five billion meals through the National School Lunch Program (NSLP) and two billion via the School Breakfast Program (SBP) to America's children each school year.

U.S. government assistance subsidizes all program meals and allows schools to serve free and substantially reduced-priced meals to children from low-income households. Traditionally, households have applied for free or reduced-price meal

benefits by submitting paper or online applications to their schools. Millions of these applications are filed every year, and nearly 9 million low-income children were approved to receive benefits in school year 2015-16 through these applications.

However, we know that there are issues with reporting, calculating, and processing applications, and many applications contain errors that result in incorrect eligibility decisions for children. While online applications

Is use of the new application required?

?

No, adoption of the new web-based prototype application is not required. FNS understands that setting up or modifying online applications requires additional resources, but encourages districts to adopt the key integrity features of the new prototype.

have the potential to reduce or eliminate calculating and processing error, household reporting error remains a challenge.

Reducing error rates in the National School Lunch and School Breakfast Programs was one of the main motivations behind the development of the web-based prototype application.

Many existing online applications mirror the designs of paper-based applications, which by nature, are static and constrained to the area of an 8 1/2" x 11" sheet of paper.

What is it?

The web-based school meal prototype application is a functional model that is meant to illustrate and advance the development of integrity-focused, user accessible, web-based design. The prototype demonstrates how an online application can take greater advantage of the dynamic capabilities of an electronic platform. Like FNS' paper prototype

application, it can be customized to meet the individual needs of State and local agencies. And while use of the application is optional, FNS encourages adoption of its critical integrity features.

Can I use it?

The application was developed using "open source" code, so it is free to use and copy without charge. It is available for download from the FNS website. It is important to note that it will require some initial investment before it is ready to use. The cost will vary depending on a number of factors, including any systems that are already in place, and access to and capabilities of IT resources. If you go through a vendor for your application, they are allowed, even encouraged, to borrow code and design features from the FNS prototype.

The FNS prototype builds on the best

Why should I use it? Districts that already offer online applications recognize their ability to reduce burden and the risk of error at both the household and school district levels.

The application is mobile-friendly, which means it will recognize the type of device the applicant is using and adjust accordingly.

That means that families can access and complete the entire application via smart phone or tablet.

features of existing online applications and incorporates lessons from recent research to further reduce error and improve the user experience (UX, as they say in the tech world). These include guiding applicants through a structured "interview" to avoid mistakes and prevent the submission of incomplete applications. They also include easy user access to instructions through integrated popup and comprehensive help. These features should help reduce the volume of questions and assistance requests received by districts from households. Also, since the prototype is mobile-friendly, a parent who has access only to a smart phone will get the same high-quality UX when applying as a parent with access to a computer.

Section

Informed design: Reasons & research behind the web-based prototype application

The science behind a human-centered design.

he Access, Participation, Eligibility, and Certification Study (APEC) conducted by USDA in school year 2012-13 showed that one in five applicants was certified into the wrong benefit category or denied benefits altogether due to applicant mistakes and administrative

processing error. The most significant applicant errors were missing household members and omitted income sources – information that was central to the process of developing the web-based prototype.



In addition to APEC, the development of the web-based prototype application was informed by other research, both internal and external to FNS. In 2015, FNS partnered with the Office of Personnel Management's (OPM) Innovation Lab to redesign its paper prototype application for the school meal programs. The FNS - OPM Lab partnership

Despite the additional questions and features in the web-based prototype application over FNS' paper prototype, the minimum requirements for information collected on an application for free or reduced price school meals have not changed. They can be found at 7 CFR 245.2, Documentation, (1).

applied a *human-centered design* approach to integrate feedback from parents in the DC metro area, and school district officials around the country, into the new design.

FNS looked in a different direction for assistance with its web-based prototype. In 2016, the agency partnered with a small team of White House Presidential Innovation Fellows for expertise in social design and software development. As in 2015, this new FNS partnership turned to parents and school district staff for their perspectives on the application process.

Despite the fact that the web-based and redesigned paper applications look and function very differently, many of the lessons and insights that came out of the research were the same. The figure to the right shows some of the recurring

themes encountered in the agency's conversations with parents and district officials. To pick just one example, applicants often expressed uncertainty whether to "...include my child who is temporarily away at college on my application?" (The answer is yes, by the way.)

FNS incorporated a number of features into the web-based prototype informal custody vs foster
missing grandparents

met income vs gros

missing babies MISSING NON-RELATIVES

duplicate names

EBT vs case num
shared custody WRONG INC FREQUENCY
ALIMONY missing income sources

don't know case num PART TIME JOBS
missing frequency MISSING SIGNATURE

missing SSN
gross income custoff application burden disability income

language barrier
omit HIT members w/o income

not truthful missing younger siblings

bi weekly
missing child income

don't read instructions

FIGURE 1.1 This **word cloud** shows some of the most common causes of household reporting error that have been encountered in research around the school meal programs.

that research suggests may reduce these very types of household error. These include a structured interview to guide applicants through the process with greater certainty, user-tested design standards to improve readability and comprehension, integrated *Help* features to make finding answers as simple as possible, and validation checks to ensure accuracy and completeness.

The next several pages of this guide contain more about the APEC study, as well as some of the other research behind the prototype application, including the evidence-based U.S. Web Design Standards. Section 2 of the guide contains screen shots that illustrate the translation of that research into the design and functional features of the prototype application.

E.A.T. School Lunch UX

In December 2015, FNS launched the **E.A.T. School Lunch UX** Challenge, a public design and coding challenge that served as the first phase of development of the web-based prototype application. The contest was run under the authority of the America **COMPETES Act**, a model for public innovation and citizen science embraced by agencies throughout the Federal government.

Contest participants had three months to design, build, and test an application for the school meal programs. The rules made clear that submissions would be judged on elements that promoted integrity without limiting eligible households' access to benefits.

The contest was a success. Contestants built more than 40 fully functional applications, and FNS awarded \$50,000 to the best entries (see below). The creativity and innovation of the designers and programmers that built applications was inspiring, and provided a strong foundation upon which FNS' prototype application was built.

LUNCH INF

Challenge

More information about the contest, including full access to all submissions can be found at https://lunchux.devpost.com/.

winners • winners • winners

winners • winners •

First Prize

LunchLine by Lauren MacGuidwin, Cody Landstrom, Keaton Bedell, and Jessica Zhang



Second Prize

Reduced Lunch Form by Gavy Aggarwal and Abirami Kurinchi-Vendhan



Third Prize

Eat School Lunch Submission by Emily



McCammon and Justin McCammon



LUNCHLINE

Student Award

Elements

Reduced Lunch Form (see left)



Lunchbox by William Holley



eatChallenge by Kyle Warneck and Anne Paprocki

Honorable Mentions



E.A.T School Lunch UX Challenge by Jon Tuttle



E.A.T. School Lunch UX by Abijeet Kaulgud



Project Almuerzo by Taylor Palmer



Popular Choice Award

Best Creative Design

Aesthetic LunchLine (see left)

Best Technical

Implementation

LunchLine (see left)

eatChallenge (see bottom left)

Best Behavioral Design

Team Lunchbox – School Lunch Mobile-Responsive Web App by Cara Abel, Miriam Donath, Alexander Tran, Andy Hollenhorst, Eric Famiglietti, and Giselle Sperber



Large Organization **Recognition Award** Project Oliver by Gravity Tank

6

U.S. Web Design Standards

In September 2015, The White House's U.S. Digital Service and 18F, part of the General Services Administration (GSA), released the U.S. Web Design

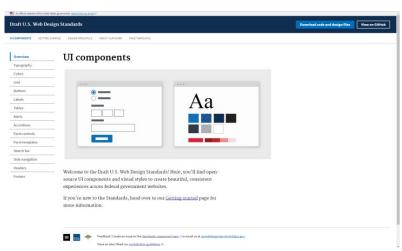


FIGURE 1.2 Screen capture of the U.S. Web Design Standards home screen. (UI stands for "user interface," i.e., what people see on the screen.)

Standards. In their own words, they "provide the plug-and-play design and code to help you set a new bar for simplicity and consistency across government services." The standards were created based on research and best-practices from both inside and outside the government, and were subsequently modified using a rapid, iterative development process that was informed by ongoing user



Alerts. The *Warning Status* alert is used in the prototype application when applicants forget to include a source of income that they indicated they had on a previous page.

testing and research. Everything from the typeface (font) to the color palette to the shape and size of buttons is meant to simplify users' interactions with a website. Better yet, all the design options meet the standards outlined in Section 508 of Title 36 in the Code of Federal Regulations to improve electronic and information technology accessibility by individuals with disabilities.

The best thing about the standards is that they are constantly being updated and improved by both government programmers and the public through an open-source, collaborative forum called GitHub. Since the different elements have been used and tested to varying extents, a "component maturity scale" is applied to each one

so that developers can make informed decisions about which elements they want to include in their design. For more information about the standards, visit https://standards.usa.gov/.

Results from the Access, Participation, Eligibility, and Certification Study

FNS developed the Access, Participation, Eligibility and Certification (APEC) study series to collect and analyze data from a nationally representative sample of schools, school food authorities (SFAs), and household applicants for school meal benefits. APEC provides national estimates of program error rates and amounts in three key areas:

- *Certification*: when a child is placed in the wrong meal reimbursement category, such as when a child who should receive reduced-price meals is certified for free meals;
- *Meal claiming*: when meals are incorrectly categorized as reimbursable or non-reimbursable at the point of sale in the cafeteria, as when a required meal component, such as a carton of milk or a piece of fruit, is missing but the meal is counted as reimbursable; and
- Aggregation: when a school or SFA tallies the number of reimbursable meals incorrectly and thus makes an error in the number of meals submitted for Federal reimbursement.

The APEC I study, which collected data in School Year 2005-2006, found significant levels of program error in each of these three categories. In response, FNS and its State agency partners invested in system improvements and process reforms to deliver long-term reductions in error rates. APEC II, which collected data in School Year 2012-2013, showed improvement in certain types of errors, particularly in the aggregation of meal counts for reimbursement. But meal claiming error and certification error remain high.

The APEC studies are designed primarily to *measure* program error, but they are also designed to shed light on the nature and causes of that error. The studies gather data through methods that include on-site observation of program operations, review of school district records, surveys of program administrators, and interviews with parents who applied for free or reduced-price meal benefits.

The APEC studies found that certification error, the focus of FNS' web-based application project, is driven by mistakes at both the school district and applicant levels. But they also confirm that applicant error is, by far, the more significant source.

APEC points to errors of omission – of both household members and income types – as critical sources of applicant error. This finding is consistent with feedback from school district officials and suggests that targeted improvements in application design can play a part in error reduction.

Applied design: Features & functional elements

The translation of research to practice.

alk through the features and functional elements of the prototype application in this section of the guide. Screen shots are annotated with dark red shapes and figures to clearly highlight the specific elements. Click on the links below to quickly navigate to a specific element, or go through them in order to get the complete landscape.

Instant translation

Detailed on-screen instructions

Pop-up and slide-out help

Guided income interview

Positive confirmation – no default responses

Discrete income reporting

New income frequency options

Sign up front

Smart progress bar

Detailed explanation of gross vs. net income

Things you'll need list

Distinct sections for students and 'other kids'

Submit more than one case number

Informed choice

Paired typeface

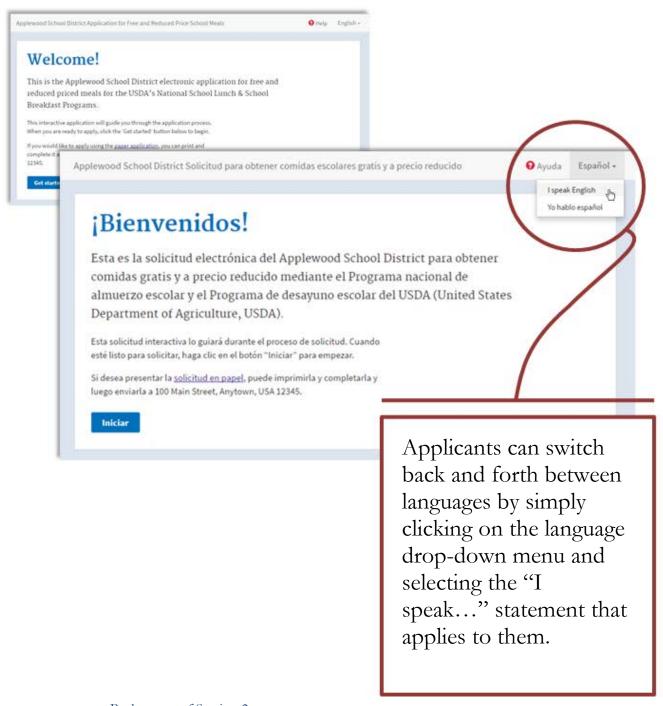
Dynamic grid layout

User-friendly buttons

Informational alerts

Instant translation

The ability for households to apply for school meals in the language that they are most comfortable with is an important access and integrity issue. While the webbased prototype will be offered in additional languages in the future, v1.0 contains English and Spanish, and the paper prototype is offered in 49 different languages, available for download from the FNS website.



Detailed on-screen instructions

APEC found that one of the most common household reporting errors was missing household members. This is a leading cause of both over-certification and mistaken denial of program benefits.

Okay, now let's talk about the adults in your household.

Not including John, what other adults live in the household?

Remember, for the purposes of applying for school meal benefits, a household is defined as a group of people, related or unrelated, that usually live together and share income and expenses. Don't forget about:

- grandparents or other extended family members that are living with you
- Also include people that are not currently living with you, but are only away on a temporary basis, like:
 - o kids that are away at college,
 - o members of your family that are in the military, and are deployed

Include people regardless of age or whether they earn or receive income.

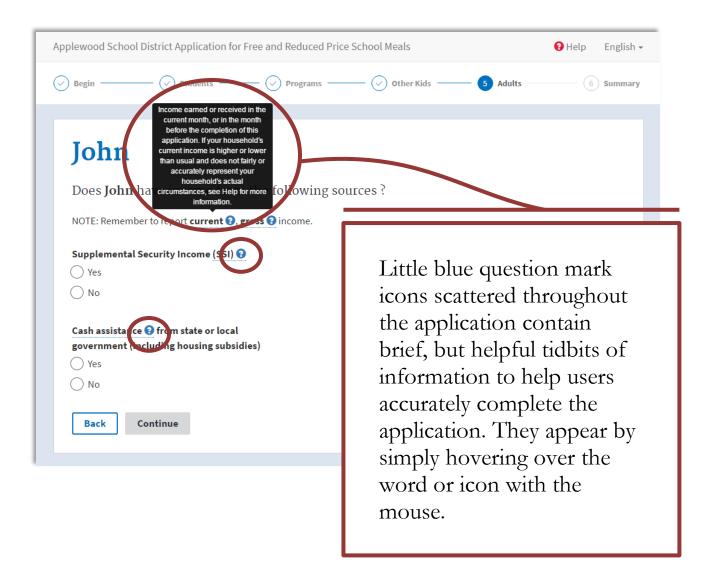
Adult

First name	requirea
Middle name	

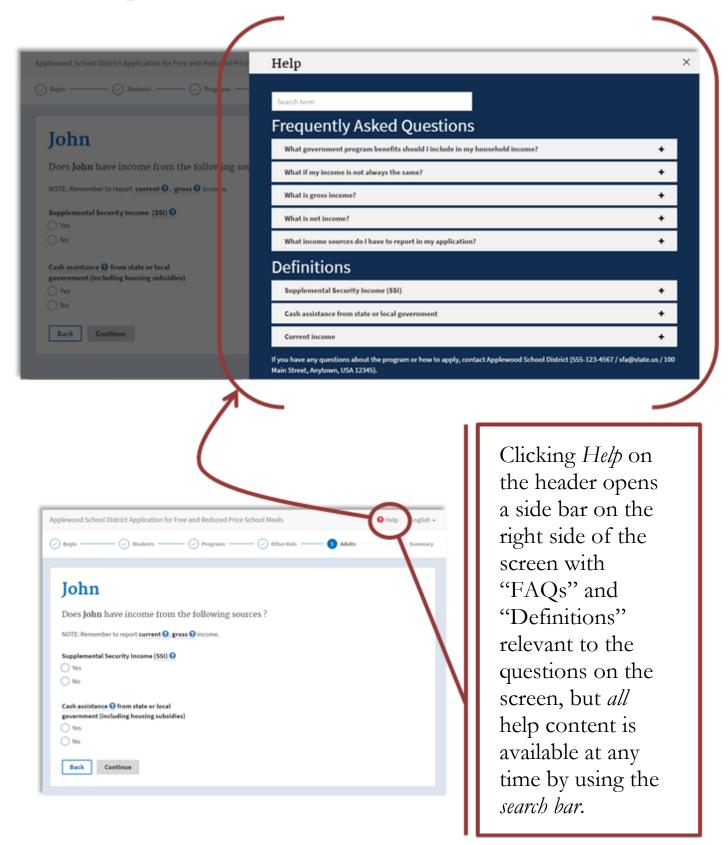
Adults who are commonly left off applications are called out specifically as a reminder to include them in the application.

Pop-up and slide-out help

Failure to read instructions is a well-known human behavior, and under the constraints of a paper format some critical information will end up in a separate document, making it even less likely that anyone will read it. In the prototype application, additional information is right at users' fingertips.



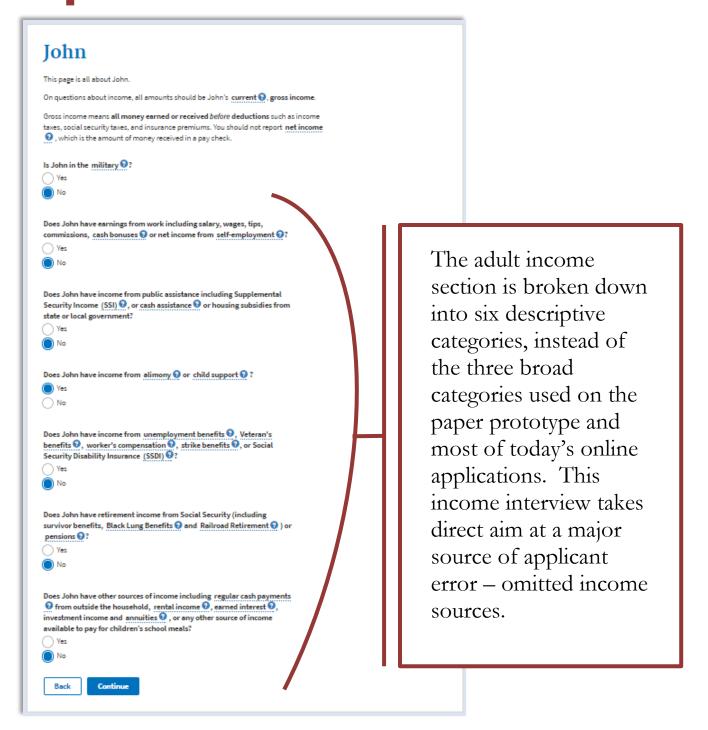
Pop-up and slide-out help, continued



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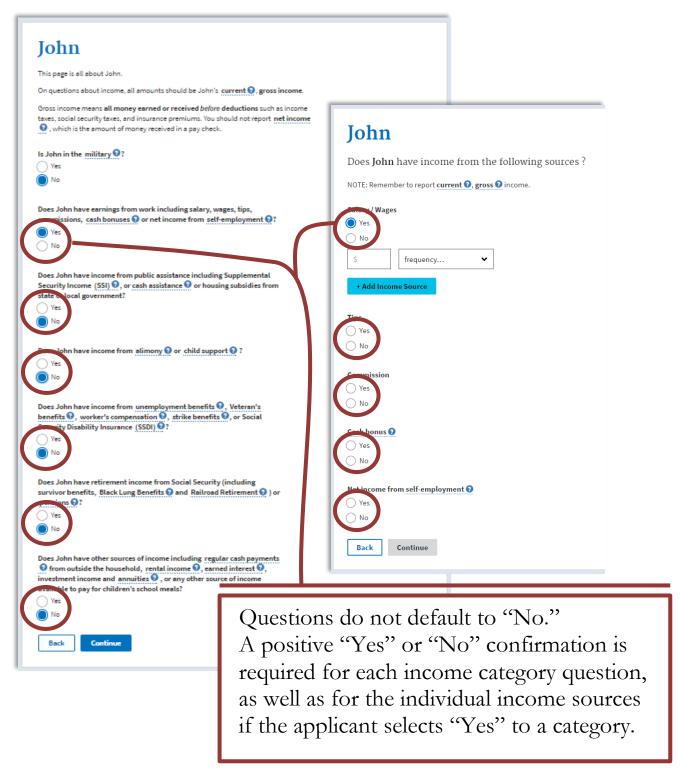
Guided income "interview"

Taking a cue from tax preparation software, the prototype prompts applicants with a straightforward series of questions about household income. FNS understands that applicants have better things to do than master school meal eligibility rules, so questions are fully descriptive, and proper terms are documented with popup definitions.



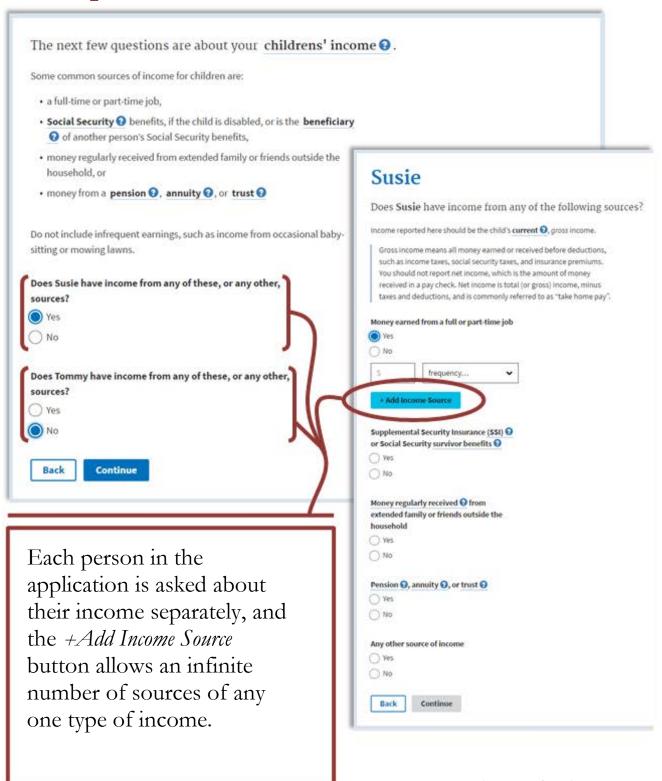
Positive confirmation – no default responses

The income interview tries to simplify the task of complete and accurate reporting by presenting the applicant with direct, well-documented questions. In return, the application puts responsibility on the applicant to read and respond to those questions.



Discrete income reporting

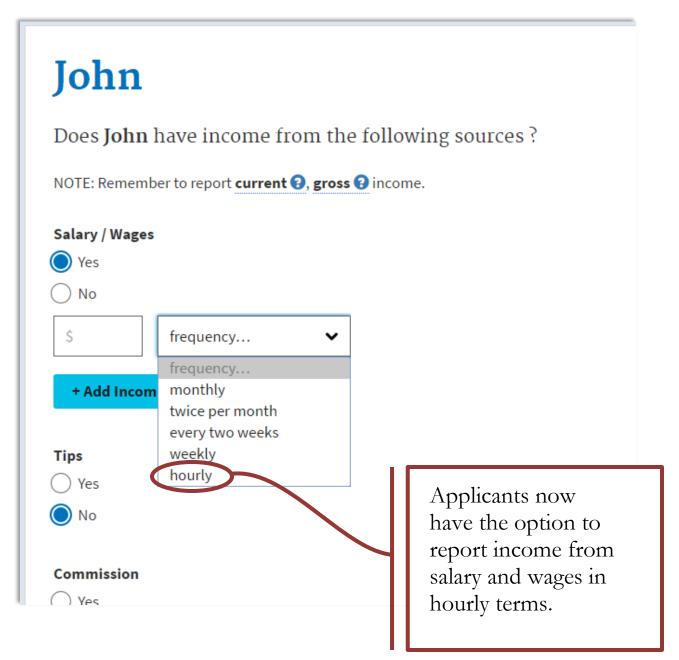
Eliminating combined fields for multiple household members and multiple sources of income relieves applicants of the need to do their own math, reducing the risk of reporting error.



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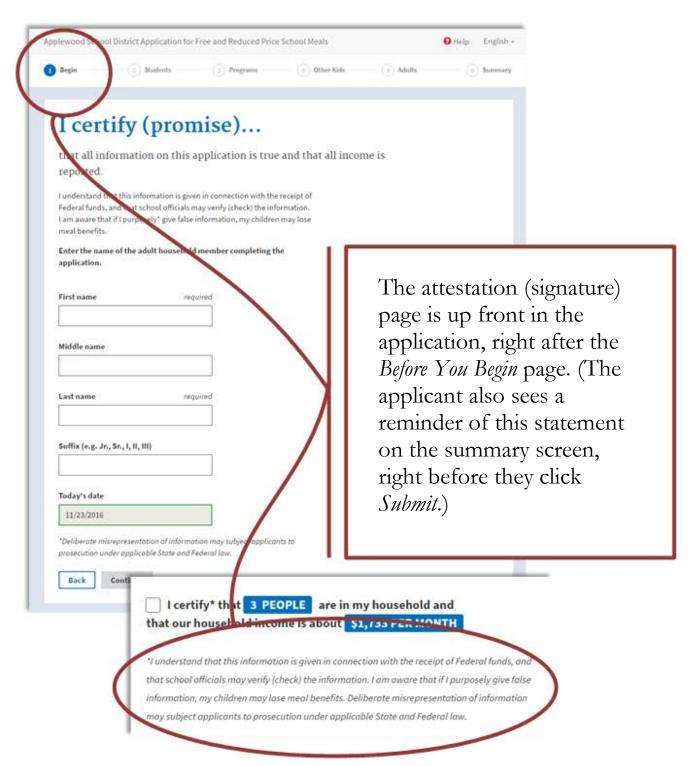
New income frequency option

For many workers, the easiest and most appropriate way to report wage or salary income is in terms of an hourly wage. Additionally, hourly income is typically expressed in gross amounts, which is how income is required to be reported in applications for school meals.



Sign up front

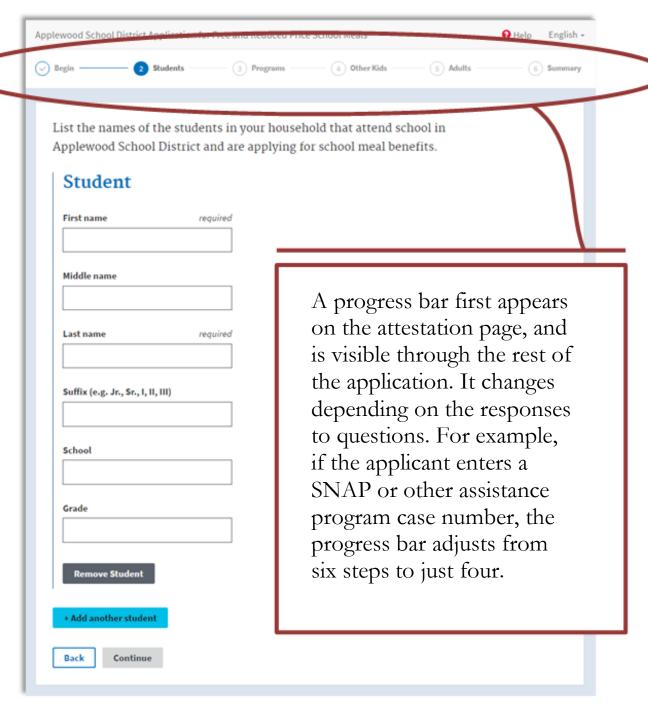
Research by social scientists finds that requiring users to sign up front, attesting to the accuracy of their information *before* reporting, reduces self-reporting errors.



Lisa L. Shu, Nina Mazar, Francesca Gino, Dan Ariely, and Max H. Bazerman, "Signing at the Beginning Makes Ethics Salient and Decreases Dishonest SelfReports in Comparison to Signing at the End," Proceedings of the National Academy of Sciences 109 (2012): 15197–15200.

Smart progress bar

When applying through an online application, users are not able to gauge up front the amount of time or effort it will take to complete. A visual representation of the applicant moving through the application, in the form of this "smart" progress bar, increases the likelihood that they will complete the application, according to the social science theory called the *endowed progress effect*.



Nunes, J., Drèze, X., & [Dawn Iacobucci served as editor and Stephen Nowlis served as associate editor for this article.]. (2006). The Endowed Progress Effect: How Artificial Advancement Increases Effort. *Journal of Consumer Research*, 32(4), 504-512.

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Detailed explanation of gross vs. net income

Many people are confused about the differences between gross and net income.

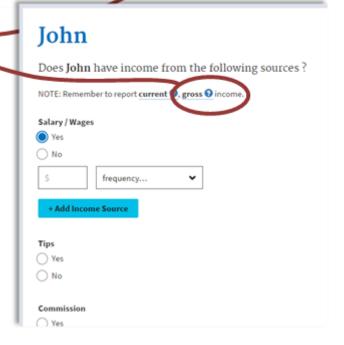
Susie

Does Sucie have income from any of the following sources?

Income reported here should be the child's current 🕢, gross income.

Gross income means all money earned or received before deductions, such as income taxes, social security taxes, and insurance premiums. You should not report net income, which is the amount of money received in a pay check. Net income is total (or gross) income, minus taxes and deductions, and is commonly referred to as "take home pay"

A detailed description of gross versus net income appears at the top of the first income screen that the applicant sees. On all subsequent income screens, the information is available in a tooltip on the word "gross."



Things you'll need list

Providing accurate information may be simpler when applicants have ready access to reference documents such as benefits statements or paystubs. Alerting them to that possibility up front may make the application process smoother.

Before you begin...

there are a few things you should know.

If you received a **letter** from the school saying that your children were automatically approved (directly certified) for free meals for the 2016/2017 school year because someone in your household participates in Supplemental Nutrition Assistance Program (SNAP), Temporary Assistance for Needy Families (TANF), or Food Distribution Program on Indian Reservations (FDPIR) then you do not need to submit an application.

We need only one application for all the children in your household that attend Applewood School District.

Eligibility 1 for free or reduced price school meal benefits is based on any one of these three things: 1

- your total household income and size in the month the application is filled out, or the month before, or
- · your child's individual status as foster, homeless, migrant or runaway, or
- · participation in an assistance program by any member of your household

Your **US citizenship or immigration status** ① does not affect your eligibility for free and reduced price benefits.

If you have questions at any point during the application, click the question mark icon to get help with the current section.

A list of "Things you'll need" is accessible from the *Before you begin* page.

Things you'll need

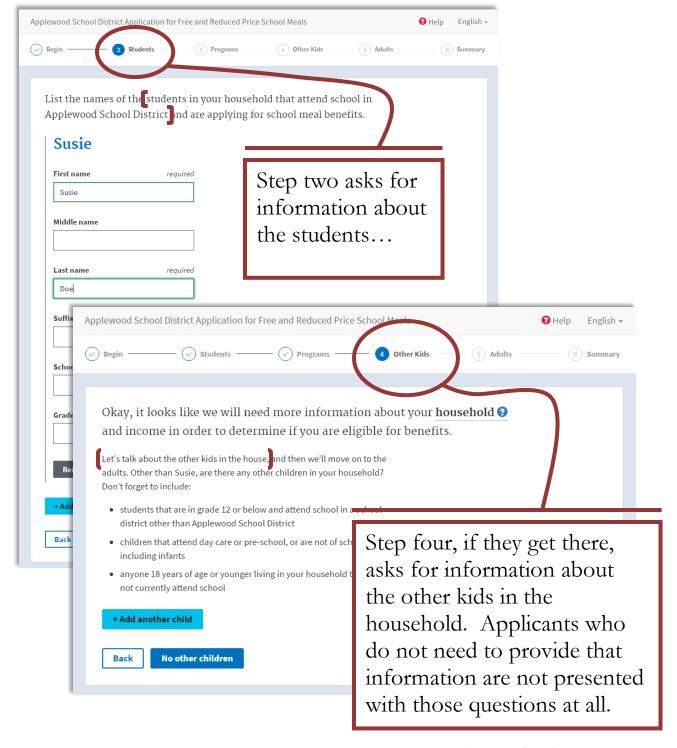
Lastly, we compiled a list of the information you might need to complete the application. Check it out!

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Distinct sections for students and "other kids"

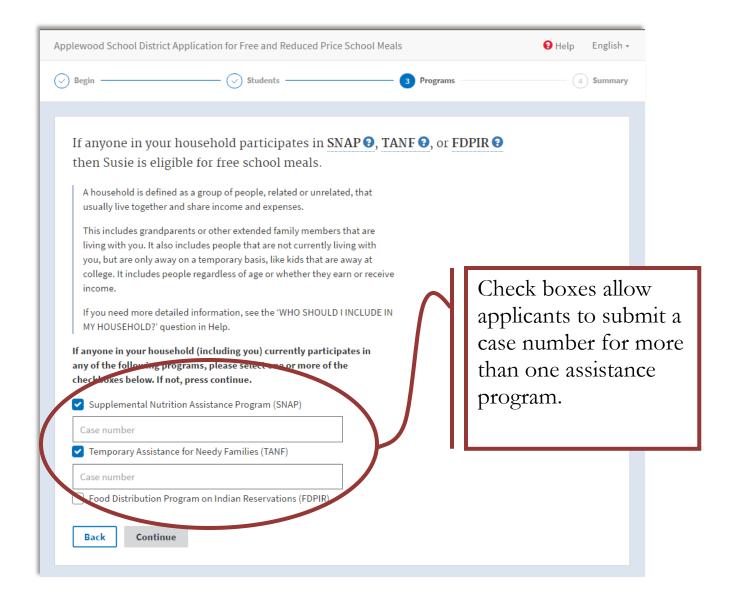
Households applying on the basis of categorical eligibility (including participation in assistance programs, foster status, or participation in programs for homeless, migrant, or runaway youth) do not need to provide information for children other than the students in the district to which they are applying.



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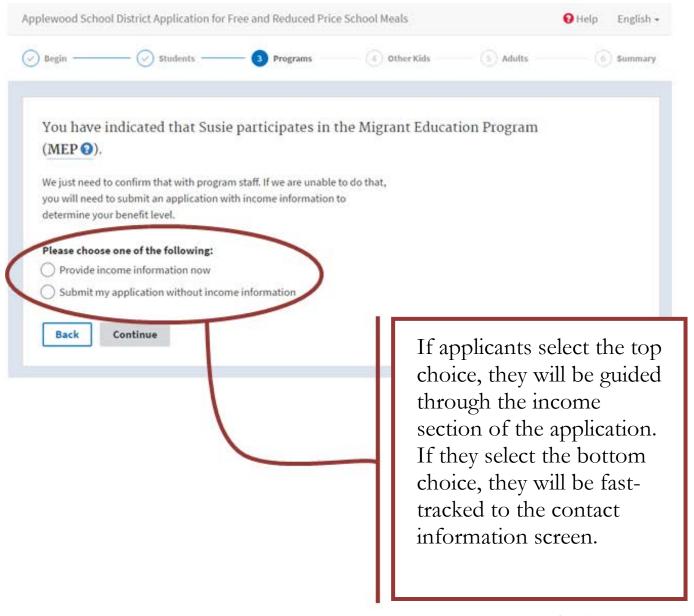
Submit more than one case number

No longer under the space constraints of a sheet of paper, there is plenty of room for applicants to enter more than one case number, if applicable and available. And if they accidentally provide a SNAP EBT card number instead of a case number, but also provide a valid TANF case number, certifying district officials will be able to certify the application without going back to the applicant.



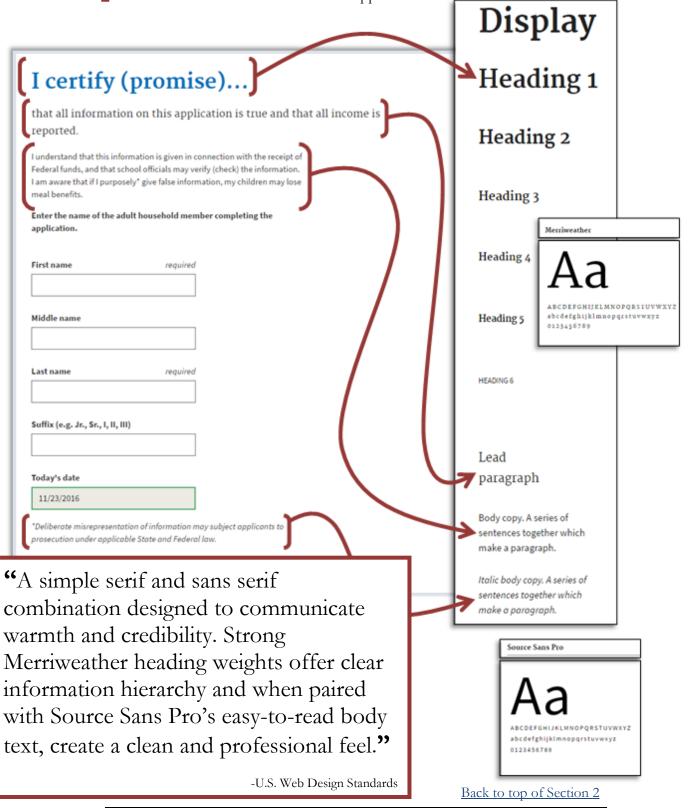
Informed choice

Households that are eligible for free or reduced meals because of student participation in a program for homeless, migrant or runaway youth are not required to provide income information in their applications. On the web-based prototype, applicants are asked specifically about participation in these programs (in contrast to other applications, including the FNS paper prototype, that simply contain checkboxes labeled, "homeless," "migrant," and "runaway"). If they indicate 'Yes' for one or more program, they reach the screen below that explains that their participation has to be confirmed before they can be certified for free meals. If applicants are confident in their response, they can submit their applications without income information, but if they are unsure, they have the option to complete the income section of the application before they submit.



Paired typeface

Fonts impact more than just readability; they exude a particular look and feel that contributes to the overall tone of the application.



Dynamic grid layout

Content on the screen is aligned consistently throughout the application.

Before you begin...

there are a few things you should know.

If you received a **letter** from the school saying that your children were automatically approved (directly certified) for free meals for the 2016–2017 school year because someone in your household participates in Supplemental Nutrition Assistance Program (SNAP), Temporary Assistance for Needy Families (TANF), or Food Distribution Program on Indian Reservations (FDPIR) then you do not need to submit an application.

We need only one application for all the children in your household that attend Applewood School District.

Eligibility of free or reduced price school meal benefits is based on any one of these three things:

- your total household income and size in the month the application is filled out, or the month before, or
- your child's individual status as foster, homeless, migrant or runaway, or
- participation in an assistance program by any member of your household

Your **US citizenship or immigration status 3** does not affect your eligibility for free and reduced price benefits.

If you have questions at any point during the application, click the question mark icon Θ to get help with the current section.

Things you'll need

Lastly, we compiled a list of the information you might need to complete the application. Check it out!

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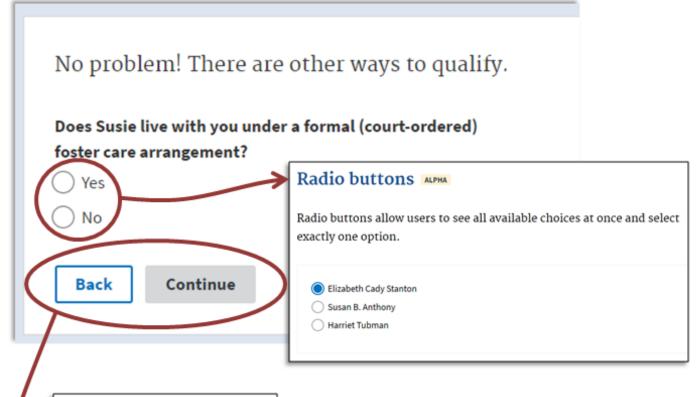
Continue

The page text is organized in an "invisible" grid that adjusts depending on the users' screen size; however the lines are generally limited to 75 characters for increased readability.

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User-friendly buttons

Buttons are easy to see and click, whether using a desktop or mobile device.





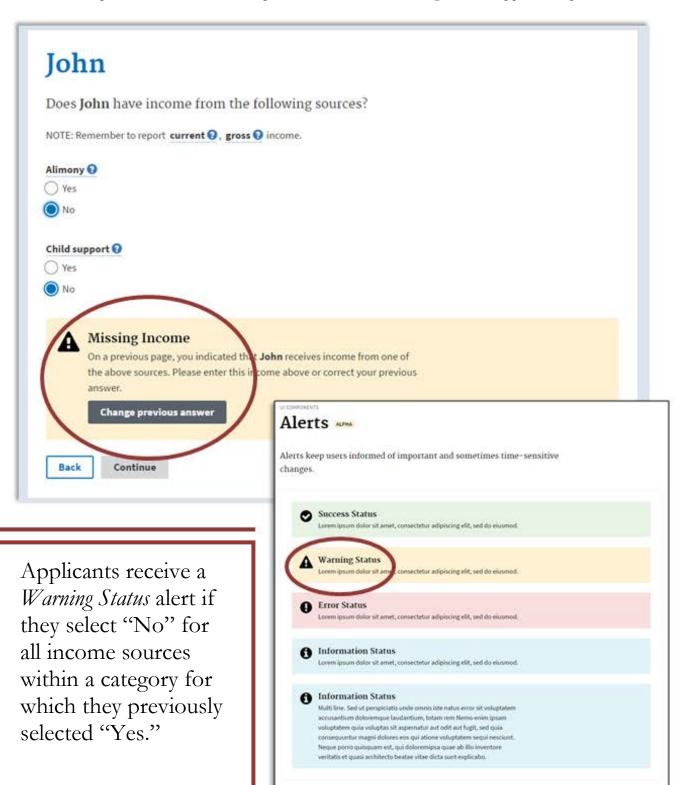
"A flexible, yet distinctly American palette designed to communicate warmth and trustworthiness while meeting the highest standards of 508 color contrast requirements."

-U.S. Web Design Standards

from the U.S. Web Design Standards

Informational alerts

Alerts provide users with critical pieces of information throughout the application process.



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There are many more examples of content and design features beyond what is contained in the pages of this Guide that were based on extensive research and deliberation among a variety of stakeholders. If you have questions about or comments on aspects of the design, email WebApp@fns.usda.gov.

Section 3

Tools & Tips for Using the Web-Based Prototype Application

A practical, how-to guide.

FAs around the country have different needs when it comes to implementing and administering the school meal programs. With this in mind, the USDA web-based prototype application contains generic information and a minimal number of elements above those required by regulation. This section of the guide explores the elements of the application that need to be customized before use and describes additional elements that FNS recommends including in an application. It ends with insights and

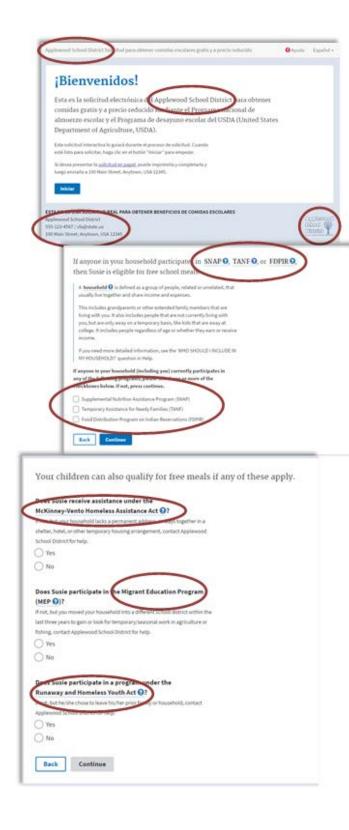


Where is the application hosted and who handles the security?

The prototype is not a USDA-hosted national application.

Hosting this or any other online application remains a school district responsibility. The prototype application does not create a database, save applicant information, or include any database management tools. As stated in the *Eligibility Manual for School Meals*, it is the responsibility of SFAs to set up and maintain their own online systems, and to ensure the security of the personal information submitted by households on their applications.

recommendations for programmers and IT professionals regarding the technical aspects of the code. If you are interested in incorporating some or all of the elements of the web-based prototype, we recommend passing this information on to your IT staff, contractor, or software vendor, as you will need to work in consultation with them to determine if and how adoption of the prototype can work in your State or district.



Customization: what you need to know

The prototype application is branded with the name and logo of a fictional district called Applewood School District (or ASD for short), and contains fake contact information. Names for the assistance programs (SNAP, TANF, and FDPIR), as well as programs for the other sources of categorical eligibility (homeless, migrant and runaway) are in the form that is used at the national level, which may differ from the names used at the local level. In Help, the definition for the Income Eligibility Guidelines (IEGs) contains an image of an empty table (the same one that appears in the prototype parent letter in the application packet on FNS' website) that should contain the annual thresholds for reduced-price benefits.

These are just a few of the elements that need to be customized before the application could be used by a State or school district. Some others include:

- letting the applicant know when they should expect to receive an eligibility notification on the post-submission/ "Thank you" screen,
- removing the "download data" button from the "Thank you" screen (this is a developer feature to make the application's data accessible, which will aid in database set-up and/or management)

- updating the links to the USDA paper prototype application on the "Welcome" page and in the *Help* FAQ, "Can I apply using a paper application?" to the paper application for your State or district,
- adding different Help topics relevant or useful to the applicants in your
 State or district, or
- requiring additional fields to facilitate proper identification, such as school, grade or student ID.

The language in the application is also written in a friendly, conversational tone, but FNS recognizes that communication styles and needs of program participants vary across the country, and that changes to the wording of questions or instructions may be appropriate. Along the same lines, translated versions of the application released by FNS may need to be adjusted in order to provide consistent messaging to program participants.

There are several other things that you may want or need to have in your online application. For example, instead of a free-form text field, a prepopulated drop-down list of all the schools in the district may be helpful to both applicants and



certifying officials. A way for families to "opt out" of applying (i.e., deny benefits) is another option you may want to include. Also, States or districts are responsible for adding text to their

Note: The monthly total on the summary page is a prompt for the applicant. It is not meant to be used by the school district for comparison against the IEGs. online applications, if necessary, to ensure that households are informed of any planned disclosure of personal information beyond that needed for free or reduced price certification. As Required

Required skills

Here is a list of skills to look for in a contractor or IT professional to work with the prototype application's code:

- ✓ Javascript
- ✓ Familiarity with REACT libraries

You will also need someone with these skills to help you set up the web-based prototype application:

- ✓ Database set-up
- ✓ Data security

stated in the Eligibility Manual, "[districts] that plan to disclose children's eligibility status for purposes other than determining and verifying free or reduced price eligibility must inform households of this potential disclosure. In some cases, the LEA must obtain consent of a parent or guardian prior to the disclosure. LEAs that anticipate disclosure specifically to Medicaid or CHIP must notify households of this and give them the opportunity to decline the disclosure." Another item, also stated in the eligibility manual, is that school district software should convert all income amounts to an

annual amount if the application includes incomes with different frequencies. The USDA prototype does not do that for you.

Many of these changes are straightforward and do not require programming skill. However, there are a number of other changes and additions that must be implemented before the application is "usable" that *do* require programming skills. (For example, setting up a database to capture and store application data.) The "Required skills" box to the right lists a few of the critical skills necessary for working with the code for the prototype application, or for setting up an online application in your State or district. Have your IT staff or contractor take look at the "For Developers" section for a more complete picture of the application's underlying structure, and to determine what additional expertise, if any, you need to bring on board.

Subscribe to the **GOVDELIVERY** listserv from the FNS webpage to stay upto-date on the latest information and updates regarding the web-based prototype application.

Section

Developers guide: introduction to the code behind the web-based prototype

he NSLP Prototype Application is a JavaScript program utilizing React.js, a JavaScript Library for building user interfaces.
All of the NSLP application source code is located in the following directory:

[Drive/Directory under which you unzipped download file]\school-meals\src\components

A final, compiled build of the application is stored in the \docs directory. To help tie together the operational prototype with the source files, we have created an application roadmap. The purpose of the roadmap below is to familiarize personnel (who will be customizing and/or extending the NSLP Prototype) with the application's structure and data.

Application Roadmap

Screen	Source File	Previous	Next	Data Field		
		Screen(s)	Screen(s)	Name	Description	
Welcome	Welcome.jsx	N/A	Before You Begin	N/A	N/A	
Before You Begin	BeforeYouBegin.j sx	Welcome	Attestation	N/A	N/A	
Attestation	Attestation.jsx	Before You	Students	First name	Required	
	·	Begin		Middle name	Optional	
				Last name	Required	
				Suffix	Optional	
				Today's date	Automatic	
Students	Students.jsx	Attestation	Assistance	Student First	Required; one	
			Programs	Name	or more students	
				Student Middle Name	Optional	
				Student Last Name	Required	
				Student Suffix	Optional	
				Student Grade	Optional	
Assistance	AssistanceProgra	Students	Contact Info (if	SNAP	Optional	
Programs	ms.jsx		any assistance	TANF	Optional	
			programs are checked)	FDPIR	Optional	
			Foster (if no	SNAF Case	Required if	
			assistance	Number	SNAP checked	
			programs are	TANF Case	Required if	
			checked)	Number	TANF checked	
				FDPIR Case	Required if	
				Number	FDPIR	
					checked	
Contact Info	Contact.jsx	Assistance	Optional	Phone Number	Optional	
		Programs	Student	77 11		
		Foster	Information	Email	Optional	
				Street address 1	Optional	
				Street address 2	Optional	
				City	Optional	
				State	Optional	
O (1	D 1: :	CAST	Т 1	ZIP	Optional	
Optional Student Information	Demographics.jsx	Contact Info	Legal Statements	Ethnicity	Optional; Demographic Info for each	
				D	student	
т 1	T 10.	0 1 1		Race	Optional	
Legal Statements	LegalStatements.j	Optional Student Information	Summary	N/A		
Summaeur	Summary.jsx		Thank You	Certification	Required;	
Summary	,	Legal Statements		Check Box	Required;	
Thank You	ThankYou.jsx	Summary	N/A	N/A		

Screen	Source File	Previous	Next		Field
		Screen(s)	Screen(s)	Name	Description
Foster	Foster.jsx	Assistance Programs	Contact Info (if court-ordered foster care is yes) Other Programs (if court-ordered foster care is no)	Court-ordered foster care	Required
Other Programs	OtherPrograms.js x	Foster	Income Election (if either McKinney- Vento Homeless Assitance Act or Runaway & Homeless Youth Acted indicated)	Receive assistance under the McKinney- Vento Homeless Assistance Act	Required
			Other Children (if neither McKinney- Vento Homeless Assitance Act or Runaway & Homeless Youth Acted indicated)	Participate in the Migrant Education Program Participate in a program under the Runaway and Homeless Youth Act	Required Required
Income Election	IncomeElection.js x	Other Programs	Contact Info(if Submit without income selected) Other Children (if Provide income information now selected	Provide Income Selection	Required
Other Children	OtherChildren.jsx	Income Election	Child Income	Child First Name Child Middle Name Child Last Name Child Suffix Foster Child	Required Optional; Zero or more children Required Optional Checkbox
Child Income	ChildIncome.jsx	Other Children	Adults in household (if no child income)	Does child have income	Required

Screen	Source File	Previous	Next	Data Field	
		Screen(s)	Screen(s)	Name	Description
Child Income Sources	ChildIncomeSlide .jsx	Child Income	Adults	Money earned from a full or part-time job	Required
				Amount for full or part-time job	Required if child has full or part-time job income
				Frequency of pay for full or part-time job	Required if child has full or part-time job income
				Social Security	Required
				Amount for Social Security	Required if child has Social Security income
				Frequency of Social Security	Required if child has Social Security income
				Money from family or friends	Required
				Amount of money from family or friends	Required if child has money from family or friends
				Frequency of money from family or friends	Required if child has money from family or friends
				Pension	Required
				Amount for Pension Income	Required if child has Pension income
				Frequency of Pension Income	Required if child has Pension income
				Other Income	Required
				Amount for Other Income	Required if child has Other income
				Frequency of Other Income	Required if child has Other income
Adults	Adults.jsx	Child Income Sources	Adult Income	Adult First Name	Required when other adult added
				Adult Middle Name	Optional

Screen	Source File	Previous	Next		Field
		Screen(s)	Screen(s)	Name	Description
				Adult Last	Required when
				Name	other adult
				A 1 1 0 66	added
			3 5 111	Adult Suffix	Optional
Adult Income	AdultIncomeOve	Adults	Military Income	Military	Required
	rview.jsx		(if Military income	Deployed	Required when
			indicated)		Military is
			maicated)	Has non-	indicated Property and Archan
				military	Required when Military is
				earnings	indicated
				Income from	Required
				public	rioquirou
				assistance	
				Alimony or	Required
				Child Support	
				Unemployment	Required
				, Veteran,	
				worker's comp,	
				strike, disability	
				Retirement	Required
3.511	2 611	0 111		Other	Required
Military Income	MilitaryIncome.js	Conditional	Conditional	Basic Income	Required
	X	based on income	based on income	Amount for	Required if
		elections	elections	Basic Income	adult has Basic
		Ciccions	Ciccions	Frequency of	Required if
				Basic Income	adult has Basic
				Dasie meome	income
				Bonus Income	Required
				Amount for	Required if
				Bonus Income	adult has Bonus
					income
				Frequency of	Required if
				Bonus Income	adult has Bonus
					income
				Allowance	Required
				Income	D =1:C
				Amount for Allowance	Required if adult has
				Income	Allowance
				meonic	income
				Frequency of	Required if
				Allowance	adult has
				Income	Allowance
					income
Public	PublicAssistanceI	Conditional	Conditional	SSI Income	Required
Assistance	ncome.jsx	based on	based on	Amount for	Required if
Income		income	income	SSI Income	adult has SSI
		elections	elections		income

Screen	Source File	Previous	Next	Data Field	
		Screen(s)	Screen(s)	Name	Description
				Frequency of SSI Income	Required if adult has SSI income
				Cash Assistance Income	Required
				Amount for Cash Assistance	Required if adult has Cash
				Income	Assistance income
				Frequency of Cash Assistance Income	Required if adult has Cash Assistance income
Spousal Income	SpousalIncome.js x	Conditional based on	Conditional based on	Alimony Income	Required
		income elections	income elections	Amount for Alimony Income	Required if adult has Alimony income
				Frequency of Alimony Income	Required if adult has Alimony income
				Child support Income	Required
				Amount for Child support Income	Required if adult has Alimony income
				Frequency of Child support	Required if adult has Child
Unemployment Income	UnemploymentIn come.jsx	Conditional based on	Conditional based on	Income Unemployment Income	support income Required
		income elections	income elections	Amount for Unemployment Income	Required if adult has Unemployment income
				Frequency of Unemployment Income	Required if adult has Unemployment income
				Worker's Compensation Income	Required
				Amount for Worker's Compensation Income	Required if adult has Worker's Compensation income

Screen	Source File	Previous	Next	Data Field	
		Screen(s)	Screen(s)	Name	Description
				Frequency of Worker's Compensation Income	Required if adult has Worker's Compensation income
				Strike Income	Required
				Amount for Strike Income	Required if adult has Strike income
				Frequency of Strike Income	Required if adult has Strike income
				SSDI Income	Required
				Amount for SSDI Income	Required if adult has SSDI income
				Frequency of SSDI Income	Required if adult has SSDI income
				Veteran Income	Required
				Amount for Veteran	Required if adult has
				Income	Veteran income
				Frequency of Veteran Income	Required if adult has Veteran income
Retirement Income	RetirementIncom e.jsx	Conditional based on	Conditional based on	Social Security Income	Required
	,	income elections	income elections	Amount for Social Security Income	Required if adult has Social Security income
				Frequency of Social Security	Required if adult has Social
				Income Pension Income	Security income Required
				Amount for Pension	Required if adult has
				Income Frequency of Pension Income	Pension income Required if adult has Pension income
Other Income	OtherIncome.jsx	Conditional	SSN	Cash Income	Required
	,	based on income elections		Amount for Cash Income	Required if adult has Cash income
				Frequency of Cash Income	Required if adult has Cash income
				Rental Income	Required

Screen	Source File	Previous	Next	Data Field	
		Screen(s)	Screen(s)	Name	Description
				Amount for	Required if
				Rental Income	adult has Rental
					income
				Frequency of	Required if
				Rental Income	adult has Rental
				_	income
				Interest Income	Required
				Amount for	Required if
				Interest Income	adult has
				_	Interest income
				Frequency of	Required if
				Interest Income	adult has
				-	Interest income
				Investment	Required
				Income	
				Amount for	Required if
				Investment	adult has
				Income	Investment
				E 6	income
				Frequency of	Required if
				Investment	adult has
				Income	Investment
				A	income
				Annuity Income	Required
				Amount for	Required if
				Annuity	adult has
				Income	Annuity
					income
				Frequency of	Required if
				Annuity	adult has
				Income	Annuity
					income
				Other Income	Required
				Amount for	Required if
				Other Income	adult has Other
					income
				Frequency of	Required if
				Other Income	adult has Other
					income
SSN	Signature.jsx	Conditional	Contact Info	SSN	Required if
		based on			"No SSN" not
		income			checked
		elections		No SSN	Checkbox

How to customize the NSLP application for your School District

Every School District will need to make the following changes to "rebrand" the NSLP application identifying your School District, contact information, and your School District Logo. All of the customizable School District information is located in the config.js file.

Locate the file config.js in the ../school-meals/src /directory. The original downloaded config.js file will look like this:

```
export const schoolYear = null
export const organization = {
 name: 'Applewood School District',
  shortname: 'ASD',
   logoUrl: 'img/Applewood_logo.png',
   contact: {
     address: '100 Main Street, Anytown, USA 12345',
     phone: '555-123-4567',
     email: 'sfa@state.us'
   },
  paperApplication: {
'http://www.fns.usda.gov/sites/default/files/cn/SP34-
2016a2.pdf',
     address: '100 Main Street, Anytown, USA 12345',
     phone: '555-123-4567',
     email: 'sfa@state.us'
 }
export const assistancePrograms = [
   'Supplemental Nutrition Assistance Program (SNAP)',
   'Temporary Assistance for Needy Families (TANF)',
```

```
'Food Distribution Program on Indian Reservations
(FDPIR)'
 1
export const assistanceProgramsVarArray = [
     fullName: 'Supplemental Nutrition Assistance
Program',
    accronym: 'SNAP'
   },
     fullName: 'Temporary Assistance for Needy
Families',
    accronym: 'TANF'
   },
     fullName: 'Food Distribution Program on Indian
Reservations',
     accronym: 'FDPIR'
   }
 1
 export const assistanceProgramsVar = {
   snap: assistanceProgramsVarArray[0],
   tanf: assistanceProgramsVarArray[1],
  fdpir: assistanceProgramsVarArray[2]
 }
 export const hmrPrograms = {
  mep: {
    fullName: 'Migrant Education Program',
     accronym: 'MEP'
   },
   mckinney: {
     shortName: 'McKinney-Vento Homeless Assistance
Act',
```

```
fullName: 'McKinney-Vento Education of Homeless
Chilren and Youth Assistance Act'
   },
  runaway: 'Runaway and Homeless Youth Act'
 }
 // To support an additional language:
 //
        1. add an import statment for it:
 import es from 'react-intl/locale-data/es';
 import en from 'react-intl/locale-data/en';
        2. add its language code to the following array:
 import { addLocaleData } from 'react-intl'
 addLocaleData([...es, ...en])
        3. create a JSON file in /translations/ with the
name of the locale code
        4. add locale to the following array (NOTE: keep
English as first item)
 export const locales = [
   {
     code: 'en',
     language: 'English',
     iSpeak: 'I speak English'
   },
   {
     code: 'es',
     language: 'Español',
     iSpeak: 'Yo hablo español'
   }
 1
```

To customize/rebrand the NSLP application, simply change the literal values (in single quotes) with your School District's information (name, shortname, logo and contact information). You will have to add your School District Logo to the ./school-meals/img directory.

To modify household assistance programs (e.g. to rename "SNAP" to "CalFresh") please modify the values of the "assistancePrograms" items.

To modify the school year, simply set the schoolYear variable in the config.js file (value should be a number, e.g. 2016).

NOTE: you don't have to do this. If you leave the value of the schoolyear variable as null, then the application will automatically update the school year every calendar year.

How to direct data entered into the NSLP application to a database

As originally developed as an operational prototype, the NSLP application creates a JavaScript Object Notation (JSON) file containing all of the object tags for data entered by the user and the values entered. You may recode the script for the Download Data button following the Summary Page to insert the data into a database or aggregator file. The script for the Download Data button is located in the source file .\school-meals\src\components\application\slides\ThankYou.jsx

The NSLP Prototype currently utilizes the download is library to save the information collected during the application process into a JSON file. The library is stored in the directory .\school-meals\node_modules\download is. By researching Open Source components that meet your requirements for printing, storing, or processing family data entered into the application.

You may remove this button (which is intended to demonstrate the data captured by the application) and introduce code that saves this data to a database when the application is submitted.

The best way to do that is by adding a componentDidMount() function to the src/components/application/slides/ThankYou.jsx file, which should persist the variable this.props.applicationData to a storage location of your choice. Note that being a JSON object, this data might most simply be persisted to a document store that natively accommodates JSON objects (e.g. MongoDB, DynamoDB, PostrgreSQL, etc.).

How to unhide the developer "Data" toolbar button for debugging and verification while you customize the application

In order to allow developers to verify data and code changes as you customize the NSLP Prototype for your School District, the original developer of the NSLP application created the "Data" toolbar button. This button allows for viewing of the populated data hash while testing code modifications; however, it is currently hidden. In order to unhide the "Data" toolbar button, you must uncomment the following section of code in the file .\school-meals\components\Navigation.jsx:

The comment delimiters are the '{/*' and '*/}' respectively. Once you remove them, the "Data" toolbar button will be available for test and debugging while you customize and modify the NSLP application to meet your School District requirements.

To re-hide the "Data" toolbar button, simply replace the comment delimiters as shown in the code snippet above.

How to add fields to the NSLP application to meet School District requirements

By default, the application captures the following information about students:

- (inherited from PersonCollection): firstName
- (inherited from PersonCollection): middleName
- (inherited from PersonCollection): lastName
- (inherited from PersonCollection): suffixName
- (defined in StudentCollection): school
- (defined in StudentCollection): name

To collect additional information about students (e.g. a student ID number), simply add appropriate entries to the object returned by the fields() method in the StudentCollection class. Note that the label for each of these additional date fields should be accompanied by a corresponding translation in all translation files located within the translations/ directory.

Utilizing Open Graph tags for the NSLP application

If you intend to share the URL to your application in any social media, it is recommended to add Open Graph tags to your index.html document. This will allow social media platforms to represent your site as you would like it to be represented when people share its URL.

Example tags:

```
<meta property="og:site_name" content="School Meals Application"/>
  <meta property="og:title" content="School Meals Application"/>
  <meta property="og:type" content="website"/>
  <meta property="og:image"
content="https://d55ey47q998kv.cloudfront.net/og-image.png"/>
  <meta itemprop="thumbnailUrl"
content="https://d55ey47q998kv.cloudfront.net/og-image.png"/>
  link rel="image_src" href="https://d55ey47q998kv.cloudfront.net/og-
image.png" />
  <meta itemprop="image"
content="https://d55ey47q998kv.cloudfront.net/og-image.png"/>
  <meta name="twitter:title" content="School Meals Application"/>
  <meta name="twitter:image"
content="https://d55ey47q998kv.cloudfront.net/og-image.png"/>
  <meta name="twitter:card" content="summary"/>
  <meta name="description" content="A model application developed by</pre>
USDA to demonstrate the potential functionality of a school district's
application for school meals (***NOT A REAL APPLICATION FOR
SCHOOL MEAL BENEFITS***)." />
```

Creating a working version of the NSLP application for further development

After you make changes to the *srt* files, follow these instructions to create a new build:

After making changes to .js or .jsx files as described in this guide, open your computer command prompt (shell, etc.) and navigate to the directory [NSLProotlocation]\school-meals and run the command:

npm run build

This will create a new <u>bundle.js</u> file in the .\docs\static\ directory. If you have changed any .css, image, or translation files, you must copy them from their respective locations to the corresponding folder within the .\docs\ directory.

Additionally, if you choose to create or modify any non-English translation files, you must also copy those from .\translations\ to .\docs\translations\. Finally, it is advisable to "bust cache" of any static assets that you modify by altering the query string of the assets as referenced in .\docs\index.html (e.g., change bundle.js?xxxxxx to bundle.js?yyyyyy where xxxxxx and yyyyyy are random strings).

Now that you have generated a new, customized version of the NSLP application, follow the instructions presented in the README.md file to launch Node.js and test your application.