

The logo features a large, thin-lined circle on the left side. A horizontal light blue bar with a gradient from light to medium blue is positioned across the middle of the circle, extending to the right edge of the page. The text "Arizona Department of Revenue" is centered within this bar in a bold, dark blue, italicized sans-serif font.

***Arizona Department of Revenue***

# **2D Barcode Developer's Manual Pub AZ-100**

*A Supplement to Publication AZ-100-A,  
2D Barcode Record Layouts and Specifications*

## **TAX YEAR 2021**

Version: 01  
Issued: 10/08/2021

## **SECTION 1 – INTRODUCTION**

This publication provides information necessary for the development of software intended for use by businesses and individuals in filing Arizona income tax returns with 2D Barcodes. If you have any questions, please contact the Arizona Department of Revenue personnel listed below. Please refer to our web site **[www.azdor.gov](http://www.azdor.gov)** for 2D Barcode updates.

You are invited to contact us with any question or comment you have regarding our 2D barcode program.

Email: **[AZBarcode@azdor.gov](mailto:AZBarcode@azdor.gov)**

Mailing Address:

Arizona Department of Revenue  
Attention: 2D Barcode Test Documents  
PO Box 29216  
Phoenix, Arizona 85038

Web Address: [www.azdor.gov](http://www.azdor.gov)

The Arizona Department of Revenue's website may be accessed for 2D Barcode updates including tax forms, form instructions and additional information covering a broad range of tax-related topics.

## SECTION 2 – CHANGES AND REMINDERS FOR TAX YEAR 2021

Changes or new additions to specifications and layouts are in **bold** text. Record layouts, available in Publication AZ-100-A, utilize a color system which indicates changes from year to year. Blue color indicates additions, Yellow color indicates modifications and Dark Orange color indicate fields that have been removed.

1. Application to Participate - Submission of the Application to Participate is required by all developers prior to testing. A sample of the application can be found in the Appendix of this publication. See Section 3 for further details.
2. All calculated fields should be calculated to three decimal places (i.e. 1.000 or .853).
3. **Added new line for Modified Federal Gross Income. For taxable years beginning from and after December 31, 2020, taxpayers may claim a subtraction of their small business income from Federal AGI. The fields for the small business income subtraction are NOT included on the record layout. (Note: Subtraction amount comes from Forms 140-SBI [140NR-SBI,140PY-SBI] which are NOT supported by 2D. If the taxpayer is intending to file an SBI return, they CANNOT file an individual return via 2D Barcode.)**
4. **For taxable years beginning from and after December 31, 2020, taxpayers may claim a subtraction for 529A (ABLE account) as well as a 529 College Savings account. These amounts are added together for a total contribution amount.**
5. Standard Deduction – the standard deductions for tax year 2021 are as follows:  
Single and Married Filing Separately = **\$12,550**  
Head of Household = **\$18,800**  
Married Filing Jointly = **\$25,100**
6. Standard Deduction Increase for Qualifying Charitable Contributions – Certain taxpayers electing to take the Standard Deduction may increase the standard deduction amount by 25% (.25) of the total amount of the taxpayer’s charitable contributions that would have been allowed if the taxpayer elected to claim itemized deductions on the AZ return. This amount is calculated on Page 3 worksheet of the return. **Removed Federal charitable contributions from Page 3 for tax year 2021.**
7. Nonresidents Must Prorate the Standard Deduction – Nonresident individuals, who claim the standard deduction, must prorate the deduction by the percentage which the taxpayer’s Arizona gross income is of the taxpayer’s federal adjusted gross income.
8. **For taxable years beginning from and after December 31, 2020, an additional line for surcharge tax related to Proposition 208 will be computed for taxpayers whose income exceeds:**

**Single and Married Filing Separately \$250,001 or more**  
**Married Filing Jointly and Head of Household \$500,001 or more**

**This amount is calculated using the revised X&Y Tax Tables.**

9. Dependent Tax Credit – For taxable years beginning from and after December 31, 2018, taxpayers may claim a nonrefundable Dependent Tax Credit for certain qualifying dependents.

Non-military part-year residents and non-residents are required to pro-rate their Dependent Tax Credit by the Arizona income tax ratio. Active military Part-year residents are not required to pro-rate the credit.

Dependents Under the age of 17 = \$100  
Dependents Age 17 and over = \$25

10. Credit Forms Supported for 2D Barcode:

301 - Nonrefundable Individual Tax Credits and Recapture  
309 - Credit for Taxes Paid to Another State or Country (2)  
310 - Credit for Solar Energy Devices  
321 - Credit for Contributions to Qualifying Charitable Organizations  
322 - Credit for Contributions Made to Public Schools  
323 - Credit for Contributions School Tuition Organizations  
340 - Credit for Donations to the Military Family Relief Fund  
348 - Credit for Contributions to Certified School Tuition Organization  
352 – Credit for Contributions to Foster Care Charities

11. **Credit forms 321, 322, 323, 348 and 352 have a new *Date of Contribution* column added to Part 1, Sections A and B (Part 2, A&B on Form 348). This date field is not included on the record layout. Line column letters have been revised.**

12. **Removed Credit 320 from Form 301, renumbered lines, and added new Credit 353. Updated current year credit thresholds for Credit 323 and Credit 348. (*Note: Form 301 has an additional total line for credits carried over from Form 301-SBI. Because Form 301-SBI is not supported by 2D, this total line is NOT included on the record layout.*)**

**Credit = S, MFS, HoH/MFJ**

**323 = \$611/\$1221 current year credit**

**348 = \$608/\$1214 current year credit**

13. **Extension Period** - Arizona has a 6-month extension, valid until October 17, 2022. (Due to October 15 being on Saturday, the due date is extended to October 17)

14. Handheld Scanners - Arizona uses handheld scanners to scan incoming 2D barcode returns. Experience has shown that the scanners perform best when the barcode symbols are a 2:1 size ratio.

15. Reminders:

- Instruct user(s) to reprint barcode page if data changes after original printing.
- Do not zero fill numeric fields.
- Do not use hyphens in SSN, FEINs, etc.
- Use UPPERCASE for all alpha characters.
- Do not punctuate suffixes, middle initials, or addresses.

16. International ACH Transaction (IAT) – If the taxpayer checks the IAT checkbox (located adjacent to the Direct Deposit fields), disable the Direct Deposit fields. A paper check will be issued to the taxpayer.
17. Closures - The Arizona Department of Revenue is closed on the holidays indicated below:

<b>HOLIDAY</b>	<b>DATE OBSERVED</b>	
New Years Day	Friday	December 31, 2021
Martin Luther King, Jr/ Civil Rights Day	Monday	January 17, 2022
Lincoln/Washington Presidents Day	Monday	February 21, 2022
Memorial Day	Monday	May 30, 2022
Independence Day	Monday	July 04, 2022
Labor Day	Monday	September 05, 2022
Columbus Day	Monday	October 10, 2022
Veterans Day	Friday	November 11, 2022
Thanksgiving Day	Thursday	November 24, 2022
* Limited Staff Friday after Thanksgiving 11/25/2022		
Christmas Day	Monday	December 26, 2022

## SECTION 3 – PROGRAM PARTICIPATION

Any software vendor who is considering using 2D Barcode needs to be approved by the Arizona Department of Revenue for form design. The form design is the same regardless of whether or not the 2D Barcode is used. To participate in the 2D Barcode program, please submit an Application to Participate via e-mail to **AZBarcode@azdor.gov**.

Once the Arizona Department of Revenue receives written notification of intent to participate, you may begin testing. Test scenarios will be available on the Arizona Department of Revenue website ([www.azdor.gov/e-file-services](http://www.azdor.gov/e-file-services)).

The Arizona Department of Revenue will give formal approval when software has successfully completed testing. Only approved software may be released and distributed by the developer.

When reviewing forms for approval, the department is verifying the form can be processed through its integrated tax system. The department does not review or approve the logic of specific software programs, nor confirm the calculations entered on the forms output from these programs. The accuracy of the program remains the responsibility of the software developer. The accuracy of the information on returns prepared using a computer program remains the responsibility of the taxpayer.

Approved software vendors will be posted on the department's web site at <http://www.azdor.gov/e-services/approved-vendors>

### Important Notice

Approval of software for 2D Barcode **does not** include approval of any substitute forms developed/produced for hardcopy submission to the Arizona Department of Revenue.

The Taxpayer Services Division of the Department of Revenue must approve all Arizona tax forms.

Electronically submit PDFs of the forms for approval to:  
[AZTaxForms@azdor.gov](mailto:AZTaxForms@azdor.gov)

## **SECTION 4 – SOFTWARE REQUIREMENTS**

Any software developed for the 2D Barcode program must meet state requirements. The following is to complement IRS and Arizona publications and is in no way intended to alter or amend their requirements.

1. Comply with all state requirements specified in the following publications:
  - Arizona Software Developers Manual AZ-100 for 2D Barcode for Tax Year 2021.
  - Arizona Publication AZ-100-A File Specifications and Layout.
2. Adhere to all state procedures, requirements and specifications.
3. Successfully complete all testing.
4. Develop preparation software in accordance with statutory requirements and Arizona Department of Revenue return preparation instructions.
5. Provide accurate Arizona income tax returns with printed 2D Barcode in correct format.
6. Place 2D Barcode in the designated rectangle near the bottom left of page 1 on each tax form.
7. 2D Barcode function is a default setting when electronic filing is also offered in the program.
8. Print four digit NACTP vendor code on the bottom of the form to the right of the ADOR form number. (For identification purposes only).
9. Provide data validation, verification and error detection to prevent transmission of incomplete, inaccurate or invalid return information.
10. Developed software is not to support 2D Barcode of any form not approved for 2D Barcode by the Arizona Department of Revenue.

## SECTION 5 – RETURNS AVAILABLE FOR 2D BARCODE

Both refund and payment due returns may be filed with 2D Barcoding. The primary tax returns supporting 2D Barcode for tax year 2021 are:

- 140 Resident Personal Income Tax Return
- 140A Resident Personal Income Tax Return (Short Form)
- 140NR Non-Resident Personal Income Tax Return
- 140PY Part-Year Personal Income Tax Return
- 140PTC Property Tax Refund (Credit) Claim

Supporting forms available for 2D Barcode consist of the following types. These forms MUST be included in the 2D Barcode for the 140 form when required/utilized for return preparation and filing.

- AZ Schedule A (2D) Arizona Copy of Federal Schedule A
- 140 Schedule A Arizona Itemized Deduction Adjustments
- 140PY A(PY) - Itemized Deductions Part-Year Resident
- 140PY A(PYN) - Itemized Deductions for Part-Year Resident with Nonresident Income
- 140NR A(NR) - Itemized Deductions for Nonresidents

Selected 300 Series Tax Credit Forms:

- 301 - Nonrefundable Individual Tax Credits and Recapture
- 309 - Credit for Taxes Paid to Another State or Country
- 309 - Credit for Taxes Paid to Another State or Country 2<sup>nd</sup> Copy
- 310 - Credit for Solar Energy Devices
- 321 - Credit for Contributions to Qualifying Charitable Organizations
- 322 - Credit for Contributions Made to Public Schools
- 323 - Credit for Contributions School Tuition Organizations
- 340 - Credit for Donations to the Military Family Relief Fund
- 348 - Credit for Contributions to Certified School Tuition Organization-Individuals
- 352 - Credit for Contributions to Qualifying Foster Care Charitable Organizations

Forms identifying tax withheld (i.e. W-2 and 1099R forms) are to be included in the 2D Barcode when an amount for state withholding exists.

All other supporting Arizona forms are not to be included in the 2D Barcode. These forms, plus the forms included in the 2D Barcode, must be printed, attached to the return, and sent to the Arizona Department of Revenue. Refer to Arizona Publication AZ-100-A, *Arizona Department of Revenue 2D Barcode File Specifications and Record Layout*, for state record information.

The Arizona Department of Revenue Forms 140, 140A, 140NR, 140PY, and 140PTC (software vendor versions) and instructions are sent to all NACTP members via e-mail. If you have not received these forms, you may request them through our 2D Barcode e-mail address **AZBarcode@azdor.gov**.



## SECTION 6 – GENERAL INFORMATION / ERRORS TO AVOID

### Barcode:

- Barcode width should be 3 5/16". The width shall not be wider than 3 5/16". The size of the barcode vertically will vary according to the information contained in the barcode.
- Arizona uses handheld scanners to scan incoming 2D barcode returns. Experience has shown that the scanners perform best when the barcode symbols are a 2:1 size ratio.
- DO NOT stretch the barcode.

### Fields:

- For blank fields, use a carriage return <CR>.

#### *Check boxes:*

- An X indicates Yes, nothing (unchecked) is Null.

#### *Social Security Numbers/FEIN/TIN:*

- Do not use hyphens.

#### *Numeric:*

- Do not zero fill numeric fields.
- Use whole-dollar amounts only.
- Commas are not permitted in numeric fields.
- Round dollar amounts from W-2s, 1099R, etc before entering amount on tax form.

#### *Alpha:*

- Use UPPERCASE for all alpha characters.
- Do not punctuate suffixes - Jr, Sr, I, II, III, etc.
- Do not punctuate middle initial. Example: Mary J. Doe (incorrect) MARY J DOE (correct).
- Do not place a space in last name. Example: MC DONALD(incorrect) MCDONALD (correct), remove space to ensure accurate processing.
- Hyphens are acceptable in last name fields.
- No extra spaces or punctuation should be in data. Example: "100 East Main," should be keyed as "100 EAST MAIN".

### Important Post-Printing Reminders:

- Instruct user to reprint barcode page if data changes after original printing of a form.
- Do not cover information with pre-printed label.

## SECTION 7 – RECORD LAYOUT

### **Record Layout:**

The intended use of the Description Column is to cross reference the barcode field number, form line number, and form line wording. The description may not be exact due to limitations of space. Refer to the tax form and instructions for the exact line wording.

**Trailer:** The last field in the barcode data stream is the trailer. It is used to indicate the end of data has been reached. A static string of "\*EOD\*" is used as the trailer value. If a trailer is not found, this indicates a data overflow condition has occurred.

**Header Information:** There is information generic to all barcodes that should be placed first in the barcode data stream. The first six fields in the barcode comprise the official header. The fields in the official header are variable length and therefore can contain as much or as little data as is necessary.

This information must be consistent among all barcodes and is defined below. (Note: The symbol <CR> is used to represent a single carriage return character.)

**Header Version Number:** will be incremented each time the standards group alters the physical structure of the barcodes that were created using multiple header formats. This value is static for all barcodes and is currently T1.

**Developer Code:** A four-digit code used to identify the Software Developer whose application produced the barcode. The purpose of this field is to allow forms to be traced to the vendor producing them. Software Developer codes are assigned through the NACTP.

**Jurisdiction:** An alphanumeric identifier indicating the taxing jurisdiction. Use the US Postal Service's official state abbreviations.

**Description:** An alphanumeric identifier used to describe the form being processed. The identifier can be used to route the barcode information to the correct system for further processing.

**Specification Version:** A number that identifies the version of the specifications used to produce the form barcode. These specifications are provided by the jurisdiction processing the form and describe the data layout in the barcode. Draft versions of the specifications are not assigned version numbers. The final version shall be "0", revision thereafter will increase numerically.

**Software/Form Version:** A vendor defined version number that reflects the software and form revision used to produce the barcode.

Example:

Header Version Number "T1"  
Developer Code:"9999"  
Jurisdiction: "AZ"  
Description: "AZ140"  
Specification Version: "01"  
Software/Form Version: "1"

Raw Header:

T1<CR>9999<CR>AZ<CR>AZ140<CR>01<CR>1<CR>

## SECTION 8 – MAILING ADDRESSES

2D returns are presorted by mailing address to allow quicker processing.

Not sending a payment or expecting a REFUND:  
Arizona Department of Revenue  
PO Box 29205  
Phoenix, AZ 85038-9205

Sending a payment:  
Arizona Department of Revenue  
PO Box 29204  
Phoenix, AZ 85038-9204

## SECTION 9 – TESTING

Testing of software developed for 2D Barcode is mandatory. All software must be tested using the Arizona scenarios. Scenarios require the appropriate forms to be created for 2D Barcode testing. Test scenarios are e-mailed to those who submit their notice of intent to participate.

It is not necessary to submit test returns for forms not supported by the software application. However, to maximize the benefits of alternative filings, the Arizona Department of Revenue encourages software developers to include all available 2D barcode forms into the program application.

The Arizona Department of Revenue will give formal confirmation via email when software has successfully completed testing. Only approved software may be released and distributed by the developer.

Any developer wishing to conduct testing in addition to that supplied and required by the Arizona Department of Revenue must obtain approval to do so prior to test submission.

## SECTION 10 – ERROR DETECTION AND NOTIFICATION

The Arizona Department of Revenue will immediately notify the developer when it detects a software problem or error. Likewise, software developers are to immediately notify the department of problems or errors associated with the software or its use. Such notifications are to be made by e-mailing the 2D Barcode staff office at **AZBarcode@azdor.gov**.

When a software error is identified, it is the responsibility of the software developer to immediately notify their user population, correct the problem and expeditiously distribute the appropriate software revision (correction) to their clients. Additionally, the Arizona Department of Revenue is to receive immediate notification of all software errors and problems. The department is to be advised when corrections are made and supplied with the related software version number and release date. The department is to be kept advised of all software versions (identification number and distribution date).

## APPENDIX – APPLICATION TO PARTICIPATE

A sample Application to Participate is shown below. Please send an email to the 2D Barcode staff at [AZBarcode@azdor.gov](mailto:AZBarcode@azdor.gov) to request the fillable application.



# Arizona 2D Barcode Application to Participate

## 2021

- Software developers must provide the information requested below before 2D test will be accepted for testing.
- Receipt and acceptance of the required documentation identifies the developer as interested in participating in the 2D barcode program for Arizona.
- It does not represent acceptance of any software nor does it confirm the accuracy of any software developed.

1. Company Name:
2. Product Names:
3. NACTP Code:
4. Primary Contact Name:
5. Contact's Daytime Phone:
6. Contact's E-mail Address:

7. Forms Supported:

- |   |   |
|---|---|
| <input type="checkbox"/> 140                  | <input type="checkbox"/> 301            |
| <input checked="" type="checkbox"/> 140 Sch A | <input type="checkbox"/> 309            |
| <input type="checkbox"/> 140A                 | <input checked="" type="checkbox"/> 310 |
| <input checked="" type="checkbox"/> 140NR     | <input type="checkbox"/> 321            |
| <input checked="" type="checkbox"/> Sch A(NR) | <input type="checkbox"/> 322            |
| <input type="checkbox"/> 140PY                | <input type="checkbox"/> 323            |
| <input type="checkbox"/> Sch A(PY)            | <input checked="" type="checkbox"/> 340 |
| <input type="checkbox"/> Sch A(PYN)           | <input type="checkbox"/> 348            |
| <input type="checkbox"/> 140PTC               | <input type="checkbox"/> 352            |

8. Additional email addresses for contacts and notification:

  
  

**Submit by Email**

Submit your completed form to [AZBarCode@azdor.gov](mailto:AZBarCode@azdor.gov)