

## 2009-2013 ACS Migration Flow Files Documentation

### Introduction:

The U.S. Census Bureau released the first county-to-county and county/minor civil division (MCD)-to-county/MCD migration flow estimates based on the American Community Survey (ACS) in April 2012. It used data collected from 2005 through 2009 that composed the first ACS 5-year dataset. The ACS program combines consecutive yearly datasets to increase the sample size and provide reliable estimates for smaller areas. Even though estimates are produced for 1-year and 3-year datasets, estimates are only published for geographic areas of at least 65,000 and 20,000 population, respectively. Only the 5-year datasets provide estimates for all counties and county equivalents in the United States.

The 2006-2010 ACS Migration Flow Files included additional files crossed by certain characteristics: age, sex, race and Hispanic or Latino origin. For the 2007-2011 release, the characteristics educational attainment, and household and individual income were used. Employment status, work status, and occupation were the characteristics used for the 2008-2012 release. That release was also the first time flows from Puerto Rico municipios to U.S. counties were included. The 2009-2013 release includes tables crossed by ability to speak English, place of birth, and years in the United States or Puerto Rico.<sup>1</sup> It is also the first release that contains ACS metro area-to-metro area files.<sup>2</sup>

The categories for the ability to speak English are divided among those who speak only English and those who speak another language. The latter group is subdivided into those who reported the ability to speak English “very well” and less than “very well.”

The place of birth question on the ACS asks the state, U.S. Island Area, or foreign country of birth. Those born in the United States or Puerto Rico are classified on whether or not their state (including the District of Columbia and Puerto Rico) of birth is the same as either the current residence or residence 1 year ago.<sup>3</sup> The place of birth categories for those born outside the United States or Puerto Rico are either countries or regions of the world. The requirement for a country to be listed individually was at least 100,000 people born in that country that either moved between counties or

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<sup>1</sup> For additional background information about historical migration flows see <[http://census.gov/hhes/migration/files/acs/county-to-county/County\\_to\\_County\\_Mig\\_Working\\_Paper.pdf](http://census.gov/hhes/migration/files/acs/county-to-county/County_to_County_Mig_Working_Paper.pdf)>. For information about the various characteristics see <[http://www2.census.gov/programs-surveys/acs/tech\\_docs/subject\\_definitions/2013\\_ACSSubjectDefinitions.pdf](http://www2.census.gov/programs-surveys/acs/tech_docs/subject_definitions/2013_ACSSubjectDefinitions.pdf)>.

<sup>2</sup> The MSA delineations are from February 2013. See <<https://www.census.gov/population/metro/>> for more information.

<sup>3</sup> For cases where state of birth is different than residence 1 year ago, the latter may be a U.S. Island Area or foreign country. Even though Puerto Rico is treated as a state equivalent for place of birth, movers from Puerto Rico to the United States are still classified as movers from abroad in the county-to-county and county/MCD-to-county/MCD migration tables, but not the metro area-to-metro area tables.

from abroad. The definitions of the regions are the same as those for residence 1 year ago listed in Appendix A.

The years in the United States or Puerto Rico characteristic are based upon the year of entry question. The problem for year of entry for multiple year ACS datasets is that the reference year of entry is set but the survey year is not. For the category entered in 2010 or later, those surveyed in 2013 includes anyone who came in the previous 3 years. Those surveyed in 2009 would include no one. For better comparability, year of entry was recoded to a period (years in the United States) rather than a date. The table below shows the relationship between the years in the U.S. categories and the values for year of entry.

Category	Year Surveyed	Year of Entry
Born in the United States (or Puerto Rico for those living in Puerto Rico)	2009 through 2013	No value
Entered the United States (or Puerto Rico) 5 years ago or less	2013	2008-2013
	2012	2007-2012
	2011	2006-2011
	2010	2005-2010
	2009	2004-2009
Entered the United States (or Puerto Rico) 6 to 15 years ago	2013	1998-2007
	2012	1997-2006
	2011	1996-2005
	2010	1995-2004
	2009	1994-2003
Entered the United States (or Puerto Rico) 16 years ago or more	2013	1997 or before
	2012	1996 or before
	2011	1995 or before
	2010	1994 or before
	2009	1993 or before

The product package also contains flow data for minor civil divisions (MCD) for a few select states in which they are commonly used as the primary substate aggregate unit in addition to or instead of counties.<sup>4</sup>

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<sup>4</sup> The states are Connecticut, Maine, Massachusetts, Michigan, Minnesota, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, and Wisconsin.

In addition, there are files that contain the migration flow, migration counterflow, net migration, and gross migration between each county pair or county/MCD pair. These files are only available without characteristics.

### **Disclosure Avoidance:**

Due to the amount of data released through standard 5-year ACS data products as well as the public use microdata samples (PUMS), and because sequential annual 5-year estimates contain overlapping samples; the Census Bureau must be vigilant in order to protect confidentiality of the respondents. Any data products that the Census Bureau releases must be reviewed and approved by the Disclosure Review Board based on disclosure avoidance rules to assure confidentiality of the respondents is protected according to Section 9 of Title 13 of the United States Code. It states “Neither the Secretary, nor any other officer or employee of the Department of Commerce or bureau or agency thereof, or local government census liaison may...make any publication whereby the data furnished by any particular establishment or individual under this title can be identified...”<sup>5</sup>

Record swapping, done to protect confidentiality, is applied to the ACS dataset used to create the straight flow files.<sup>6</sup> The additional disclosure avoidance measure of suppressing flows with small numbers of cases is applied for any flows with characteristics.<sup>7</sup> Flow counts and mover counts without characteristics, however, are not suppressed. The exact disclosure measures are determined by the Disclosure Review Board before each future product is released.

For the characteristic files, county and MCD flows that have been suppressed are summed to the state level for residence 1 year ago. In these cases, the value of ‘XXX’ is assigned for county of residence 1 year ago and ‘XXXXX’ for MCD of residence 1 year ago, when applicable. If there still are not enough cases, then the state level flow is suppressed.

Complementary suppression is applied to the MSA flows by characteristics so that suppressed county flows cannot be derived. This includes small flows along with larger flows. If a MSA-to-MSA flow is

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<sup>5</sup> For more information on how Census data are protected see [http://census.gov/about/policies/privacy/data\\_protection.html](http://census.gov/about/policies/privacy/data_protection.html).

<sup>6</sup> Data swapping was the main procedure used for protecting Census 2000 tabulations and is also used for ACS tabulations. In each case, a small percentage of household records are swapped. Pairs of households in different geographic regions are swapped. The selection process for deciding which households should be swapped is highly targeted to affect the records with the most disclosure risk. Pairs of households that are swapped match on a minimal set of demographic variables. All data products are created from the swapped data files. (Design and Methodology, 2009)

<sup>7</sup> County and MCD characteristic flows containing only one or two people from different households, only one or two people in group quarters, or one person in group quarters and the rest from a single household are suppressed. People are only counted if they are in universe (e.g., age 16 years or over for employment status).

suppressed for a particular characteristic, some information about the flow can be obtained from the MSA-to-MSA flow table without characteristics along with the county-to-county flows by that characteristic within each MSA that are not suppressed.

Supplemental statistics for each county or MCD (e.g., number of nonmovers, movers to a different state) that are also included in the flow files are subject to thresholds. Some select characteristics are published annually as part of the ACS standard data products available through American FactFinder (AFF) in tables for both current residence and residence 1 year ago geography. These include characteristics in previous flow products, such as age, sex, Hispanic origin, educational attainment, and individual income. None of the characteristics used in this release are part of the ACS standard geographical mobility tables. The Census Bureau applies separate disclosure avoidance rules to these tables containing residence 1 year ago estimates. The universe for each table must have at least 50 unweighted cases for the Census Bureau to publish the table. The same rules are applied to the county-to-county, county/MCD-to-county/MCD, and MSA-to-MSA files.<sup>8</sup> If there is not a sufficient number of cases, the supplemental statistics for county, MCD, or MSA of residence 1 year ago by characteristics are not shown.

### **Blank Values:**

An estimate may be blank for the following reasons.

1. The estimate is out of scope for the ACS sample – such as supplement statistics for world regions.
2. The estimate does not exist – such as movers to a different county in the same state for the District of Columbia.
3. The supplemental statistics for county of residence 1 year ago or MCD of residence 1 year ago were suppressed due to disclosure avoidance. (Characteristic files only)

Besides blank estimates, flows with no records in the database and suppressed flows crossed by characteristics are not included in the files. The flows with no records are considered zero count estimates. The margins of error (MOE) for these zero count estimates cannot be calculated using the standard replicate variance formula.<sup>9</sup> For published ACS data products, the MOE for a zero count estimate is calculated using a different method. The standard errors for the zero count

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<sup>8</sup> The universe for place of birth and years in the United States (or Puerto Rico) is the population 1 year and over. The universe for ability to speak English is the population 5 years and over.

<sup>9</sup> For more information concerning the calculation of margin of errors, see chapter 12 of *Design and Methodology: American Community Survey*.

estimates are calculated by taking the square root of the product of the 90<sup>th</sup> percentile k value and the average weight for the state of residence. Estimates for previous residence use the U.S. average weight. The standard error is then multiplied by 1.645 in order to get the 90 percent MOE.<sup>10</sup> Before the 2012 ACS, only a single k value was used. The methodology was changed to account for more nuanced k values. This resulted in 6 different k values for 5-year ACS. They are assigned based upon the total population of an area. For certain geographies, the total population is the official population estimate. If there is no official population estimate available, then the total population may be found in table B01003 through American FactFinder.

Population Thresholds	k-value	Margin of Error	
		Using Minimum Average Weight (7)	Using Maximum Average Weight (17)
Less than 5,000	4	9	14
5,000 to less than 10,000	8	12	19
10,000 to less than 20,000	10	14	21
20,000 to less than 30,000	14	16	25
30,000 to less than 50,000	18	18	29
Greater than or equal to 50,000	22	20	32

The average weights are calculated for each state of current residence and the k-value for the county of current residence is used. All estimates for residence 1 year ago and current residence estimates for metro areas that cross state lines should use the average weight for the U.S.

State of Current Residence	Average Weight	State of Current Residence	Average Weight	State of Current Residence	Average Weight
Alabama	12	Maryland	14	South Carolina	15
Alaska	8	Massachusetts	14	South Dakota	8
Arizona	15	Michigan	10	Tennessee	14
Arkansas	13	Minnesota	7	Texas	15
California	14	Mississippi	14	Utah	12
Colorado	13	Missouri	11	Vermont	8
Connecticut	13	Montana	9	Virginia	14
Delaware	12	Nebraska	8	Washington	13
Dist. of Columbia	14	Nevada	16	West Virginia	12

<sup>10</sup> The model to compute ACS margins of error for zero-estimate counts was updated for 2012 ACS. More information can be found at <[http://www2.census.gov/programs-surveys/acs/tech\\_docs/user\\_notes/KValueUserNote.pdf](http://www2.census.gov/programs-surveys/acs/tech_docs/user_notes/KValueUserNote.pdf)>.

Florida	17	New Hampshire	12	Wisconsin	8
Georgia	16	New Jersey	13	Wyoming	12
Hawaii	12	New Mexico	13	Puerto Rico	15
Idaho	12	New York	13		
Illinois	12	North Carolina	14	United States	13
Indiana	12	North Dakota	7		
Iowa	9	Ohio	12		
Kansas	10	Oklahoma	9		
Kentucky	12	Oregon	13		
Louisiana	13	Pennsylvania	10		
Maine	9	Rhode Island	15		

**Coverage and Group Quarter Population:**

The American Community Survey covers the entire population residing in the United States and Puerto Rico, both in housing units and group quarter facilities. Each year, independent housing unit address samples are selected for each county equivalent in the United States and Puerto Rico. Samples of group quarters facilities and persons in group quarters are done at the state level, including Puerto Rico and the District of Columbia. In order to provide a better representation of group quarter estimates over smaller areas, whole person imputation into not-in-sample group quarters facility was started with the 2011 ACS, including the 2007-2011 ACS 5-year estimates.<sup>11</sup> To better preserve the relationship between current and previous residence for these imputed cases, a recipient’s county of residence 1 year ago is changed to the current county of residence if the donor moved within the same county; otherwise, the donor’s county of residence 1 year ago is used for the imputation.

The group quarters population includes people living in correctional institutions, juvenile detention facilities, nursing homes, other long-term care facilities, college dormitories, military facilities, and other noninstitutional facilities. An occasional anomaly in the number of movers between a county pair can occur due to whole person group quarters imputation and higher rates of inter-county migration for people in group quarters compared to the general public. The 2009-2013 ACS inter-county mover rates for group quarters are shown in the table below. The estimated group quarters population for a county can be found in detailed table B26001 on American Community Survey.

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<sup>11</sup> For more information on ACS group quarters small area estimation, see <[http://www2.census.gov/programs-surveys/acs/tech\\_docs/user\\_notes/GQSAE\\_User\\_Note.pdf](http://www2.census.gov/programs-surveys/acs/tech_docs/user_notes/GQSAE_User_Note.pdf)>.

	Population 1 year and over		Percent movers between counties within the United States		Percent movers from abroad	
	Estimate	MOE	Percent	MOE	Percent	MOE
Total:	307,797,122	+/-12,821	5.4	+/-0.1	0.6	+/-0.1
Group Quarters:	8,023,265	+/- 538	30.5	+/-0.1	1.7	+/-0.1
Adult correctional facilities	2,253,693	+/- 655	33.2	+/-0.2	0.9	+/-0.1
Nursing facilities/skilled facilities	1,503,743	+/- 28	8.0	+/-0.2	0.1	+/-0.1
College/university housing	2,568,533	+/- 28	42.8	+/-0.3	2.9	+/-0.1

Source: U.S. Census Bureau, 2009-2013 American Community Survey, Subject Table S2601B

## **Format of the Files:**

There are separate text and Excel files for flows between counties, flows between metropolitan statistical areas (MSAs), and flows between minor civil divisions (MCDs) in some selected states. In several states, minor civil divisions are county subdivisions that are the primary governmental or administrative divisions of a county. In 12 states, the MCD governments serve as general-purpose local governments similar to incorporated municipalities.<sup>12</sup> In some of these states, county governments are limited or non-existent; therefore, MCDs are used as the main substate aggregate unit rather than counties. These 12 states are assigned MCD codes for residence 1 year ago during the geocoding process for ACS.

### **County-to-County Flow Files with No Characteristics**

The county-to-county flows files are provided in two formats. There is one fixed field length national text file sorted by current residence geography. There is also an Excel file (.xlsx) containing a worksheet for each state of current residence, including Puerto Rico and District of Columbia, and another Excel file containing a worksheet for each state of residence 1 year ago.

Besides the county of current residence, county of residence 1 year ago, and the number of movers between the two, the files also contain additional geographical mobility estimates for each county, along with the margin of error (MOE) at the 90-percent confidence level. (For further information about the geographies used for the files see Appendix A.)

The layout of the text file is as follows:

<b>Field Description</b>	<b>Field Position</b>
Current Residence FIPS State Code	1-3
Current Residence FIPS County Code	4-6
Residence 1 Year Ago FIPS State Code/U.S. Island Areas Code/Foreign Region Code	7-9
Residence 1 Year Ago FIPS County Code	10-12
Current Residence State Name	14-43
Current Residence County Name	44-78
Population 1 Year and Over Current County – Estimate	80-87
Population 1 Year and Over Current County – MOE	89-96
Nonmovers Current County – Estimate	98-104

<sup>12</sup> For more information on geographic terms and concepts, see <<http://census.gov/geo/www/reference.html>>.



Nonmovers Current County – MOE	106-112
Movers within the United States for Current County or within Puerto Rico for Current Municipio – Estimate	114-120
Movers within the United States for Current County or within Puerto Rico for Current Municipio – MOE	122-128
Movers within the Same County for Current County – Estimates	130-136
Movers within the Same County for Current County – MOE	138-144
Movers from a Different County in the Same State for Current County – Estimate	146-152
Movers from a Different County in the Same State for Current County – MOE	154-160
Movers from a Different State for Current County – Estimate	162-168
Movers from a Different State for Current County – MOE	170-176
Movers from Abroad – Estimate	178-184
Movers from Abroad – MOE	186-192
Residence 1 Year Ago State Name/U.S. Island Areas/Foreign Region	194-223
Residence 1 Year Ago County Name	224-258
Population That Lived in County 1 Year Ago – Estimate	260-267
Population That Lived in County 1 Year Ago – MOE	269-276
Nonmovers County of Residence 1 Year Ago – Estimate	278-284
Nonmovers County of Residence 1 Year Ago– MOE	286-292
Movers within the United States for County of Residence 1 Year Ago or within Puerto Rico for Municipio of Residence 1 Year Ago – Estimate	294-300
Movers within the United States for County of Residence 1 Year Ago or within Puerto Rico for Municipio of Residence 1 Year Ago – MOE	302-308
Movers within the Same County for County of Residence 1 Year Ago – Estimates	310-316
Movers within the Same County for County of Residence 1 Year Ago – MOE	318-324
Movers to a Different County in the Same State for County of Residence 1 Year Ago – Estimate	326-332
Movers to a Different County in the Same State for County of Residence 1 Year Ago – MOE	334-340
Movers to a Different State for County of Residence 1 Year Ago – Estimate	342-348
Movers to a Different State for County of Residence 1 Year Ago – MOE	350-356
Movers to Puerto Rico – Estimate	358-364
Movers to Puerto Rico – MOE	366-372
Movers within Flow – Estimate	374-380
Movers within Flow – MOE	382-388

**County-to-County Net and Gross Migration Files (No Characteristics)**

There are two files, text and Excel, that contains flow, counterflow, net migration, and gross migration for all county pairs (Geography A and Geography B). The Excel file has a worksheet for each state. Both files are sorted by Geography A. The flow shows the immigration from Geography B to Geography A. The counterflow shows the outmigration from Geography A to Geography B.

The layout for the text file is as follows:

<b>Field Description</b>	<b>Field Position</b>
State/U.S. Island Area/Foreign Region Code of Geography A (state code based on FIPS code)	1-3
FIPS County Code of Geography A	4-6
State/U.S. Island Area/Foreign Region of Geography B (state code based on FIPS code)	7-9
FIPS County Code of Geography B	10-12
State/U.S. Island Area/Foreign Region Name of Geography A	14-43
County Name of Geography A	44-78
State/U.S. Island Area/Foreign Region Name of Geography B	80-109
County Name of Geography B	110-144
Flow from Geography B to Geography A – Estimate	146-153
Flow from Geography B to Geography A – MOE	155-162
Counterflow from Geography A to Geography B – Estimate	164-171
Counterflow from Geography A to Geography B – MOE	173-180
Net Migration from Geography B to Geography A – Estimate	182-189
Net Migration from Geography B to Geography A – MOE	191-198
Gross Migration between Geography A and Geography B – Estimate	200-207
Gross Migration between Geography A and Geography B – MOE	209-216

## County-to-County Flow Files by Characteristics

There is a set of county-to-county files, text and Excel, for each of the three characteristics. The county-to-county characteristic flow files have the same fields as the county-to-county flow files with the additional field for characteristic code in positions 14-15. The field contains an ability to speak English code, place of birth code, or years in the United States (or Puerto Rico) code depending upon the file.

The layout of the text file is as follows:

Field Description	Field Position
Current Residence FIPS State Code	1-3
Current Residence FIPS County Code	4-6
Residence 1 Year Ago FIPS State Code/U.S. Island Areas Code/Foreign Region Code	7-9
Residence 1 Year Ago FIPS County Code	10-12
Characteristic Code  Ability to Speak English: (Universe: Population 5 years and over) 01 = Speak only English 02 = Speak a language other than English, speak English "very well" 03 = Speak a language other than English, speak English less than "very well"  Place of Birth Code: (Universe: Population 1 year and over) 01 = Same state* as current residence and residence 1 year ago 02 = Same state* as current residence, different state from residence 1 year ago (The latter may be a U.S. Island Area or foreign country) 03 = Different state* than current residence, same state as residence 1 year ago 04 = Different state* than current residence or residence 1 year ago (The latter may be a U.S. Island Area or foreign country) 05 = Born in U.S. Island Area 06 = Born in Germany 07 = Born in remainder of Europe 08 = Born in China (People's Republic, Hong Kong, Macau, Parcel	14-15

<p>Islands, or Taiwan)</p> <p>09 = Born in India</p> <p>10 = Born in the Philippines</p> <p>11 = Born in remainder of Asia</p> <p>12 = Born in Northern America</p> <p>13 = Born in Mexico</p> <p>14 = Born in remainder of Central America</p> <p>15 = Born in the Caribbean</p> <p>16 = Born in South America</p> <p>17 = Born in Africa</p> <p>18 = Born in Oceania or At Sea</p> <p>* Includes the District of Columbia and Puerto Rico as state equivalents for place of birth</p> <p>Years in United States (or Puerto Rico): (Universe: Population 1 year and over)</p> <p>01 = Born in the United States. (or Puerto Rico for those living in Puerto Rico)</p> <p>02 = Entered the United States (or Puerto Rico) 5 years ago or less</p> <p>03 = Entered the United States (or Puerto Rico) 6 to 15 years ago</p> <p>04 = Entered the United States (or Puerto Rico) 16 years ago or more</p>	
Current Residence State Name	16-45
Current Residence County Name	46-80
Population Current County – Estimate	82-89
Population Current County – MOE	91-98
Nonmovers Current County – Estimate	100-106
Nonmovers Current County – MOE	108-114
Movers within the United States for Current County or within Puerto Rico for Current Municipio – Estimate	116-122
Movers within the United States for Current County or within Puerto Rico for Current Municipio – MOE	124-130
Movers within the Same County for Current County – Estimates	132-138
Movers within the Same County for Current County – MOE	140-146
Movers from a Different County in the Same State for Current County – Estimate	148-154
Movers from a Different County in the Same State for Current County – MOE	156-162

Movers from a Different State for Current County – Estimate	164-170
Movers from a Different State for Current County – MOE	172-178
Movers from Abroad – Estimate	180-186
Movers from Abroad – MOE	188-194
Residence 1 Year Ago State Name/U.S. Island Areas/Foreign Region	196-225
Residence 1 Year Ago County Name	226-260
Population That Lived in County 1 Year Ago – Estimate	262-269
Population That Lived in County 1 Year Ago – MOE	271-278
Nonmovers County of Residence 1 Year Ago – Estimate	280-286
Nonmovers County of Residence 1 Year Ago– MOE	288-294
Movers within the United States. for County of Residence 1 Year Ago or within Puerto Rico for Municipio of Residence 1 Year Ago – Estimate	296-302
Movers within the United States for County of Residence 1 Year Ago or within Puerto Rico for Municipio of Residence 1 Year Ago – MOE	304-310
Movers within the Same County for County of Residence 1 Year Ago – Estimates	312-318
Movers within the Same County for County of Residence 1 Year Ago – MOE	320-326
Movers to a Different County in the Same State for County of Residence 1 Year Ago – Estimate	328-334
Movers to a Different County in the Same State for County of Residence 1 Year Ago – MOE	336-342
Movers to a Different State for County of Residence 1 Year Ago – Estimate	344-350
Movers to a Different State for County of Residence 1 Year Ago – MOE	352-358
Movers to Puerto Rico – Estimate	360-366
Movers to Puerto Rico – MOE	368-374
Movers within Flow – Estimate	376-382
Movers within Flow – MOE	384-390

## County/MCD-to-County/MCD Flow Files

The County/MCD-to-County/MCD files are similar to the county-to-county files except that MCDs are used instead of counties for Connecticut, Maine, Massachusetts, Michigan, Minnesota, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, and Wisconsin.

There is one fixed field length national text file sorted by current residence geography. There is also an Excel file (.xlsx) containing a worksheet for each state of current residence, including Puerto Rico and District of Columbia, and another Excel file containing a worksheet for each state of residence 1 year ago.

In addition to the county or MCD of current residence, county or MCD of residence 1 year ago, and the number of movers between the two, the files also contain additional geographical mobility estimates for each county or MCD, along with the margin of error (MOE) at the 90-percent confidence level. (For further information about the geographies used for the files see Appendix A.)

The layout of the text file is as follows:

<b>Field Description</b>	<b>Field Position</b>
Current Residence FIPS State Code	1-3
Current Residence FIPS County Code	4-6
Current Residence FIPS MCD Code (CT, ME, MA, MN, MI, NH, NJ, NY, PA, RI, VT, WI only)	7-11
Residence 1 Year Ago FIPS State Code/U.S. Island Areas Code/Foreign Region Code	12-14
Residence 1 Year Ago FIPS County Code	15-17
Residence 1 Year Ago FIPS MCD Code (CT, ME, MA, MN, MI, NH, NJ, NY, PA, RI, VT, WI only)	18-22
Current Residence State Name	24-53
Current Residence County Name	54-88
Current Residence MCD Name (CT, ME, MA, MN, MI, NH, NJ, NY, PA, RI, VT, WI only)	89-133
Population 1 Year and Over Current County/MCD – Estimate	135-142
Population 1 Year and Over Current County/MCD – MOE	144-151
Nonmovers Current County/MCD – Estimate	153-159
Nonmovers Current County/MCD – MOE	161-167
Movers within the United States for Current County/MCD or within Puerto Rico for Current Municipio – Estimate	169-175

Movers within the United States for Current County/MCD or within Puerto Rico for Current Municipio – MOE	177-183
Movers within the Same County/MCD for Current County/MCD – Estimates	185-191
Movers within the Same County/MCD for Current County/MCD – MOE	193-199
Movers from a Different County/MCD in the Same State for Current County/MCD – Estimate	201-207
Movers from a Different County/MCD in the Same State for Current County/MCD – MOE	209-215
Movers from a Different State for Current County/MCD – Estimate	217-223
Movers from a Different State for Current County/MCD – MOE	225-231
Movers from Abroad – Estimate	233-239
Movers from Abroad – MOE	241-247
Residence 1 Year Ago State Name/U.S. Island Area/Foreign Region	249-278
Residence 1 Year Ago County Name	279-313
Residence 1 Year Ago MCD Name (CT, ME, MA, MN, MI, NH, NJ, NY, PA, RI, VT, WI only)	314-358
Population That Lived in County/MCD 1 Year Ago – Estimate	360-367
Population That Lived in County/MCD 1 Year Ago – MOE	369-376
Nonmovers County/MCD of Residence 1 Year Ago – Estimate	378-384
Nonmovers County/MCD of Residence 1 Year Ago– MOE	386-392
Movers within the United States for County/MCD of Residence 1 Year Ago or within Puerto Rico for Municipio of Residence 1 Year Ago – Estimate	394-400
Movers within the United States for County/MCD of Residence 1 Year Ago or within Puerto Rico for Municipio of Residence 1 Year Ago – MOE	402-408
Movers within the Same County/MCD for County/MCD of Residence 1 Year Ago – Estimates	410-416
Movers within the Same County/MCD for County/MCD of Residence 1 Year Ago – MOE	418-424
Movers to a Different County/MCD in the Same State for County/MCD of Residence 1 Year Ago – Estimate	426-432
Movers to a Different County/MCD in the Same State for County/MCD of Residence 1 Year Ago – MOE	434-440
Movers to a Different State for County/MCD of Residence 1 Year Ago – Estimate	442-448
Movers to a Different State for County/MCD of Residence 1 Year Ago – MOE	450-456
Movers to Puerto Rico – Estimate	458-464
Movers to Puerto Rico – MOE	466-472

Movers within Flow – Estimate	474-480
Movers within Flow – MOE	482-488

**County/MCD-to-County/MCD Net and Gross Migration Files (No Characteristics)**

There are two files, text and Excel, that contains flow, counterflow, net migration, and gross migration for all county/MCD pairs (Geography A and Geography B). The Excel file has a worksheet for each state. Both files are sorted by Geography A. The flow shows the immigration from Geography B to Geography A. The counterflow shows the outmigration from Geography A to Geography B.

The layout for the text file is as follows:

<b>Field Description</b>	<b>Field Position</b>
State/U.S. Island Area/Foreign Region Code of Geography A (state code based on FIPS code)	1-3
FIPS County Code of Geography A	4-6
FIPS MCD Code of Geography A (CT, ME, MA, MN, MI, NH, NJ, NY, PA, RI, VT, WI only)	7-11
State/U.S. Island Area/Foreign Region Code of Geography B (state code based on FIPS code)	12-14
FIPS County Code of Geography B	15-17
FIPS MCD Code of Geography B (CT, ME, MA, MN, MI, NH, NJ, NY, PA, RI, VT, WI only)	18-22
State/U.S. Island Area/Foreign Region Name of Geography A	24-53
County Name of Geography A	54-88
MCD Name of Geography A (CT, ME, MA, MN, MI, NH, NJ, NY, PA, RI, VT, WI only)	89-133
State/U.S. Island Area/Foreign Region Name of Geography B	134-163
County Name of Geography B	164-198
MCD Name of Geography B (CT, ME, MA, MN, MI, NH, NJ, NY, PA, RI, VT, WI only)	199-243
Flow from Geography B to Geography A – Estimate	245-252
Flow from Geography B to Geography A – MOE	254-261
Counterflow from Geography A to Geography B – Estimate	263-270
Counterflow from Geography A to Geography B – MOE	272-279



Net Migration from Geography B to Geography A – Estimate	281-288
Net Migration from Geography B to Geography A – MOE	290-297
Gross Migration between Geography A and Geography B – Estimate	299-306
Gross Migration between Geography A and Geography B – MOE	308-315

### County/MCD-to-County/MCD Flow Files by Characteristics

There is a set of county/MCD-to-county/MCD files, text and Excel, for each of the three characteristics. The county/MCD-to-county/MCD characteristic flow files have the same fields as the county/MCD-to-county/MCD flow files with the additional field for characteristic code in positions 24-25. The field contains an ability to speak English code, place of birth code, or years in the United States (or Puerto Rico) code depending upon the file.

The layout of the text file is as follows:

Field Description	Field Position
Current Residence FIPS State Code	1-3
Current Residence FIPS County Code	4-6
Current Residence FIPS MCD Code (CT, ME, MA, MN, MI, NH, NJ, NY, PA, RI, VT, WI only)	7-11
Residence 1 Year Ago FIPS State Code/U.S. Island Areas Code/Foreign Region Code	12-14
Residence 1 Year Ago FIPS County Code	15-17
Residence 1 Year Ago FIPS MCD Code (CT, ME, MA, MN, MI, NH, NJ, NY, PA, RI, VT, WI only)	18-22
Characteristic Code  Ability to Speak English: (Universe: Population 5 years and over) 01 = Speak only English 02 = Speak a language other than English, speak English “very well” 03 = Speak a language other than English, speak English less than “very well”  Place of Birth Code: (Universe: Population 1 year and over)	24-25

<p>01 = Same state* as current residence and residence 1 year ago</p> <p>02 = Same state* as current residence, different state from residence 1 year ago (The latter may be a U.S. Island Area or foreign country)</p> <p>03 = Different state* than current residence, same state as residence 1 year ago</p> <p>04 = Different state* than current residence or residence 1 year ago (The latter may be a U.S. Island Area or foreign country)</p> <p>05 = Born in U.S. Island Area</p> <p>06 = Born in Germany</p> <p>07 = Born in remainder of Europe</p> <p>08 = Born in China (People’s Republic, Hong Kong, Macau, Paracel Islands, or Taiwan)</p> <p>09 = Born in India</p> <p>10 = Born in the Philippines</p> <p>11 = Born in remainder of Asia</p> <p>12 = Born in Northern America</p> <p>13 = Born in Mexico</p> <p>14 = Born in remainder of Central America</p> <p>15 = Born in the Caribbean</p> <p>16 = Born in South America</p> <p>17 = Born in Africa</p> <p>18 = Born in Oceania or At Sea</p> <p>* Includes the District of Columbia and Puerto Rico as state equivalents for place of birth</p> <p>Years in United States (or Puerto Rico): (Universe: Population 1 year and over)</p> <p>01 = Born in the United States. (or Puerto Rico for those living in Puerto Rico)</p> <p>02 = Entered the United States (or Puerto Rico) 5 years ago or less</p> <p>03 = Entered the United States (or Puerto Rico) 6 to 15 years ago</p> <p>04 = Entered the United States (or Puerto Rico) 16 years ago or more</p>	
Current Residence State Name	26-55
Current Residence County Name	56-90
Current Residence MCD Name (CT, ME, MA, MN, MI, NH, NJ, NY, PA, RI, VT, WI only)	91-135
Population Current County/MCD – Estimate	137-144

Population Current County/MCD – MOE	146-153
Nonmovers Current County/MCD – Estimate	155-161
Nonmovers Current County/MCD – MOE	163-169
Movers within the U.S. for Current County/MCD or within Puerto Rico for Current Municipio – Estimate	171-177
Movers within the U.S. for Current County/MCD or within Puerto Rico for Current Municipio – MOE	179-185
Movers within the Same County/MCD for Current County/MCD – Estimates	187-193
Movers within the Same County/MCD for Current County/MCD – MOE	195-201
Movers from a Different County/MCD in the Same State for Current County/MCD – Estimate	203-209
Movers from a Different County/MCD in the Same State for Current County/MCD – MOE	211-217
Movers from a Different State for Current County/MCD – Estimate	219-225
Movers from a Different State for Current County/MCD – MOE	227-233
Movers from Abroad – Estimate	235-241
Movers from Abroad – MOE	243-249
Residence 1 Year Ago State Name/U.S. Island Area/Foreign Region	251-280
Residence 1 Year Ago County Name	281-315
Residence 1 Year Ago MCD Name (CT, ME, MA, MN, MI, NH, NJ, NY, PA, RI, VT, WI only)	316-360
Population That Lived in County/MCD 1 Year Ago – Estimate	362-369
Population That Lived in County/MCD 1 Year Ago – MOE	371-378
Nonmovers County/MCD of Residence 1 Year Ago – Estimate	380-386
Nonmovers County/MCD of Residence 1 Year Ago – MOE	388-394
Movers within the U.S. for County/MCD of Residence 1 Year Ago or within Puerto Rico for Municipio of Residence 1 Year Ago – Estimate	396-402
Movers within the U.S. for County/MCD of Residence 1 Year Ago or within Puerto Rico for Municipio of Residence 1 Year Ago – MOE	404-410
Movers within the Same County/MCD for County/MCD of Residence 1 Year Ago – Estimates	412-418
Movers within the Same County/MCD for County/MCD of Residence 1 Year Ago – MOE	420-426
Movers to a Different County/MCD in the Same State for County/MCD of Residence 1 Year Ago – Estimate	428-434
Movers to a Different County/MCD in the Same State for County/MCD of Residence 1 Year Ago – MOE	436-442

Movers to a Different State for County/MCD of Residence 1 Year Ago – Estimate	444-450
Movers to a Different State for County/MCD of Residence 1 Year Ago – MOE	452-458
Movers to Puerto Rico – Estimate	460-466
Movers to Puerto Rico – MOE	468-474
Movers within Flow – Estimate	476-482
Movers within Flow – MOE	484-490

### MSA-to-MSA Flow Files with No Characteristics

The MSA-to-MSA Flows files are provided in two formats. There is one fixed field length national text file sorted by current residence geography. There is also an Excel file (.xlsx) containing flows between all the MSAs in the United States and Puerto Rico and the District of Columbia.

Besides the MSA of current residence, MSA of residence 1 year ago, and the number of movers between the two, the files also contain additional geographical mobility estimates for each MSA along with the margin of error (MOE) at the 90-percent confidence level. (For further information about the geographies used for the files see Appendix A.)

The layout of the text file is as follows:

Field Description	Field Position
Current Residence MSA Code (February 2013 delineations)	1-5
Residence 1 Year Ago MSA Code (February 2013 delineations)	6-10
Current Residence MSA Name	12-71
Population 1 Year and Over Current MSA – Estimate	73-80
Population 1 Year and Over Current MSA – MOE	82-89
Nonmovers Current MSA – Estimate	91-97
Nonmovers Current MSA – MOE	99-105
Movers within the Same MSA – Estimate	107-113
Movers within the Same MSA – MOE	115-121
Movers from a Different MSA for Current MSA – Estimate	123-129
Movers from a Different MSA for Current MSA – MOE	131-137
Movers from Elsewhere in the United States or Puerto Rico for Current MSA – Estimate	139-145
Movers from Elsewhere in the United States or Puerto Rico for Current MSA	147-153

– MOE	
Movers from Abroad (not including Puerto Rico) – Estimate	155-161
Movers from Abroad (not including Puerto Rico) – MOE	163-169
Residence 1 Year Ago MSA Name	171-230
Population That Lived in MSA 1 Year Ago – Estimate	232-239
Population That Lived in MSA 1 Year Ago – MOE	241-248
Nonmovers MSA of Residence 1 Year Ago – Estimate	250-256
Nonmovers MSA of Residence 1 Year Ago– MOE	258-264
Movers within the Same MSA – Estimate	266-272
Movers within the Same MSA – MOE	274-280
Movers to a Different MSA for MSA of Residence 1 Year Ago – Estimate	282-288
Movers to a Different MSA for MSA of Residence 1 Year Ago – MOE	290-296
Movers to Elsewhere in the United States or Puerto Rico for MSA of Residence 1 Year Ago – Estimate	298-304
Movers to Elsewhere in the United States or Puerto Rico for MSA of Residence 1 Year Ago – MOE	306-312
Movers within Flow – Estimate	314-320
Movers within Flow – MOE	322-328

### MSA-to-MSA Flow Files by Characteristics

There is a set of MSA-to-MSA files, text and Excel, for each of the three characteristics. The MSA-to-MSA characteristic flow files have the same fields as the MSA-to-MSA flow files with the additional field for characteristic code in positions 12-13. The field contains an ability to speak English code, place of birth code, or years in the U.S. (or Puerto Rico) code depending upon the file.

The layout of the text file is as follows:

Field Description	Field Position
Current Residence MSA Code (February 2013 delineations)	1-5
Residence 1 Year Ago MSA Code (February 2013 delineations)	6-10
Characteristic Code	12-13
Ability to Speak English: (Universe: Population 5 years and over) 01 = Speak only English	

02 = Speak a language other than English, speak English “very well”  
03 = Speak a language other than English, speak English less than “very well”

Place of Birth Code:

(Universe: Population 1 year and over)

- 01 = Same state\* as current residence and residence 1 year ago
- 02 = Same state\* as current residence, different state from residence 1 year ago (The latter may be a U.S. Island Area or foreign country)
- 03 = Different state\* than current residence, same state as residence 1 year ago
- 04 = Different state\* than current residence or residence 1 year ago (The latter may be a U.S. Island Area or foreign country)
- 05 = Born in U.S. Island Area
- 06 = Born in Germany
- 07 = Born in remainder of Europe
- 08 = Born in China (People’s Republic, Hong Kong, Macau, Paracel Islands, or Taiwan)
- 09 = Born in India
- 10 = Born in the Philippines
- 11 = Born in remainder of Asia
- 12 = Born in Northern America
- 13 = Born in Mexico
- 14 = Born in remainder of Central America
- 15 = Born in the Caribbean
- 16 = Born in South America
- 17 = Born in Africa
- 18 = Born in Oceania or At Sea

\* Includes the District of Columbia and Puerto Rico as state equivalents for place of birth

Years in United States (or Puerto Rico):

(Universe: Population 1 year and over)

- 01 = Born in the United States. (or Puerto Rico for those living in Puerto Rico)
- 02 = Entered the United States (or Puerto Rico) 5 years ago or less
- 03 = Entered the United States (or Puerto Rico) 6 to 15 years ago
- 04 = Entered the United States (or Puerto Rico) 16 years ago or more

Current Residence MSA Name	14-73
Population 1 Year and Over Current MSA – Estimate	75-82
Population 1 Year and Over Current MSA – MOE	84-91
Nonmovers Current MSA – Estimate	93-99
Nonmovers Current MSA – MOE	101-107
Movers within the Same MSA – Estimate	109-115
Movers within the Same MSA – MOE	117-123
Movers from a Different MSA for Current MSA – Estimate	125-131
Movers from a Different MSA for Current MSA – MOE	133-139
Movers from Elsewhere in the U.S. or Puerto Rico for Current MSA – Estimate	141-147
Movers from Elsewhere in the U.S. or Puerto Rico for Current MSA – MOE	149-155
Movers from Abroad (not including Puerto Rico) – Estimate	157-163
Movers from Abroad (not including Puerto Rico) – MOE	165-171
Residence 1 Year Ago MSA Name	173-232
Population That Lived in MSA 1 Year Ago – Estimate	234-241
Population That Lived in MSA 1 Year Ago – MOE	243-250
Nonmovers MSA of Residence 1 Year Ago – Estimate	252-258
Nonmovers MSA of Residence 1 Year Ago– MOE	260-266
Movers within the Same MSA – Estimate	268-274
Movers within the Same MSA – MOE	276-282
Movers to a Different MSA for MSA of Residence 1 Year Ago – Estimate	284-290
Movers to a Different MSA for MSA of Residence 1 Year Ago – MOE	292-298
Movers to Elsewhere in the U.S. or Puerto Rico for MSA of Residence 1 Year Ago – Estimate	300-306
Movers to Elsewhere in the U.S. or Puerto Rico for MSA of Residence 1 Year Ago – MOE	308-314
Movers within Flow – Estimate	316-322
Movers within Flow – MOE	324-330

## **Appendix A: Geography**

### **County Equivalents**

Counties are the primary legal division in most states, but a few states have equivalent divisions known by different names. In order to get a complete partition of the United States and Puerto Rico, the following divisions are treated as county equivalents in the files.

Borough (Alaska)

Census Area (Alaska)

City and Borough (Alaska)

County (All except Alaska, District of Columbia, Louisiana, and Puerto Rico)

District of Columbia

Independent City (Maryland, Missouri, Nevada, Virginia)<sup>13</sup>

Municipality (Alaska)

Municipio (Puerto Rico)

Parish (Louisiana)

### **Minor Civil Divisions**

The county/MCD-to-county/MCD files include minor civil division estimates for the 12 states in which they also serve as general-purpose local governments. The 12 states have various names for their minor civil divisions.

Connecticut (City, Town)

Maine (City, Gore, Indian Reservation, Plantation, Town, Unorganized Territory)

Massachusetts (City, Town)

Michigan (Charter Township, City, Township)

Minnesota (City, Township, Unorganized Territory)

New Hampshire (City, Grant, Location, Town, Township)

New Jersey (Borough, City, Purchase, Town, Township, Village)

New York (Borough, City, Indian Reservation, Town)

Pennsylvania (Borough, City, Town, Township)

Rhode Island (City, Town)

Vermont (City, Gore, Grant, Town)

Wisconsin (City, Town, Village)

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<sup>13</sup> In previous county-to-county flow products, some counties and independent cities were collapsed into single entities due to cognitive and geographic coding problems with migration data for places. (For the Census 2000 list of combined Virginia counties and independent cities see Appendix B in Migration DVD documentation at [http://census.gov/population/www/cen2000/migration/mig\\_dvd.html](http://census.gov/population/www/cen2000/migration/mig_dvd.html)).



## Puerto Rico

Prior to the 2008 ACS, the stateside questionnaire only requested respondents to answer “Puerto Rico” if they lived in Puerto Rico 1 year ago. The Puerto Rico questionnaire asked for a municipio or a U.S. county for movers, along with other geographic information; therefore, municipio level migration flow data from Puerto Rico to the United States are not available prior to 2008 but are available for flow from the United States to each Puerto Rico municipio.

The question was revised in 2008 to ask for the same geographic information on the Puerto Rico and stateside information allowing estimates to be calculated for both flow directions. Because of this limitation, prior ACS county-to-county migration flow files aggregated flows from Puerto Rico to the United States. to “Puerto Rico” rather than individual municipios. The 2008-2012 files are the first to include flows from Puerto Rico municipios to U.S. counties. Puerto Rico municipios are treated as equivalent to U.S. counties.

## U.S. Island Areas and Foreign Countries

Outmigration from the United States and Puerto Rico to U.S. Island Areas or foreign countries is not available from the American Community Survey since only housing units and group quarters (e.g., college dormitories, military barracks, prisons) within the United States and Puerto Rico are sent questionnaires. The American Community Survey does collect data for U.S. Island Area or Foreign Country of residence 1 year ago. The files include immigration from outside the United States and Puerto Rico aggregated to U.S. Island Areas and foreign region. A three letter code is used to identify these areas.

### U.S. Island Areas (ISL):

American Samoa, Baker Island, Guam, Howland Island, Jarvis Island, Johnston Atoll, Kingman Reef, Northern Marianas Islands, Midway Islands, Navassa Island, Palmyra Atoll, U.S. Virgin Islands, Wake Island, U.S. Island Areas not specified.

### Europe (EUR):

Albania, Andorra, Austria, Azores Islands, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Czechoslovakia, Czech Republic, Denmark, England, Estonia, Faroe Islands, Finland, France, Germany, Gibraltar, Greece, Guernsey, Hungary, Iceland, Ireland, Isle of Man, Italy, Jan Mayen, Jersey, Kosovo, Latvia, Liechtenstein, Lithuania, Luxembourg, Macedonia, Malta, Madeira Islands, Moldova, Monaco, Montenegro, Netherlands, Northern Ireland, Norway, Poland, Portugal, Romania, Russia, San Marino, Scotland, Serbia, Slovakia, Slovenia, Spain, Svalbard, Sweden, Switzerland, Ukraine, United Kingdom, USSR, Vatican City, Wales, Yugoslavia, Europe not specified.

### Asia (ASI):

Afghanistan, Armenia, Azerbaijan, Bahrain, Bangladesh, Bhutan, Brunei, Cambodia, China, Cyprus, East Timor, Georgia, Hong Kong, India, Indonesia, Iran, Iraq, Israel, Japan, Jordan, Korea, Kazakhstan, Kyrgyzstan, Kuwait, Laos, Lebanon, Macau, Malaysia, Maldives, Mongolia, Myanmar (Burma), Nepal, North Korea, Oman, Pakistan, Paracel Islands, Philippines, Qatar, Saudi Arabia, Singapore, South Korea, Spratley Islands, Sri Lanka, Syria, Taiwan, Tajikistan, Thailand, Turkey, Turkmenistan, United Arab Emirates, Uzbekistan, Vietnam, Yemen, Asia not specified.

Northern America (NAM):

Bermuda, Canada, Greenland, St. Pierre & Miquelon, North American not specified

Central America (CAM):

Belize, Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Central America not specified

Caribbean (CAR):

Anguilla, Antigua and Barbuda, Aruba, Bahamas, Barbados, Bonaire, British Virgin Islands, Cayman Islands, Cuba, Curaçao, Dominica, Dominican Republic, Grenada, Guadeloupe, Haiti, Jamaica, Martinique, Montserrat, Netherland Antilles, Saba, St. Barthelemy, St. Kitts-Nevis, St. Lucia, St. Vincent and the Grenadines, Sint Eustatius, Sint Maarten, Trinidad and Tobago, Turks and Caicos Islands, West Indies not specified

South America (SAM):

Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Falkland Islands, French Guiana, Guyana, Paraguay, Peru, Suriname, Uruguay, Venezuela, South American not specified

Africa (AFR):

Algeria, Angola, Benin, Botswana, British Indian Ocean Territory, Burkina Faso, Burundi, Cameroon, Cabo Verde, Central African Republic, Chad, Comoros, Congo, Democratic Republic of Congo, Djibouti, Egypt, Equatorial Guinea, Ethiopia, Eritrea, Europa Island, Gabon, Gambia, Ghana, Glorioso Islands, Guinea, Guinea-Bissau, Ivory Coast, Juan de Nova Island, Kenya, Lesotho, Liberia, Libya, Madagascar, Malawi, Mali, Mauritania, Mauritius, Mayotte, Morocco, Mozambique, Namibia, Niger, Nigeria, Reunion, Rwanda, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, Somalia, South Africa, South Sudan, St Helena, Sudan, Swaziland, Tanzania, Togo, Tromelin Island, Tunisia, Uganda, Western Sahara, Zambia, Zimbabwe, Africa not specified

Oceania and At Sea (OCE):

Australia, Christmas Island, Cook Islands, Coral Sea Islands, Heard and McDonald Islands, Fiji, French Polynesia, Kiribati, Marshall Islands, Micronesia, Nauru, New Caledonia, New Zealand, Niue, Norfolk

Island, Palau, Papua New Guinea, Pitcairn Islands, Solomon Islands, Tokelau, Tonga, Tuvalu, Vanuatu, Wallis and Futuna Islands, Samoa, Oceania not specified, At sea

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