

# XDelta Compression Format

The XINA Delta (xd) compression format is a simple, high performance format for compression and decompression of a list of numeric values into a string. The compression is most efficient for data sets with frequently repeated values, or predictable value iterations.

The format consists of a few main features:

- a comma separated list of values
- blank values indicating either repeating the previous value, or a static value
- "nX" indicates repeating the previous value X times
- each point is a delta of the previous point (which can be applied recursively)
- transformation of values (typically just to reduce their size, since the format is plain-text)

The configuration of the encoding of a particular string is denoted by a comma delimited set of steps. These are:

- b<number> - blanks are provided static value
- br - blanks repeat previous value
- d - single iteration delta
- dd - double iteration delta
- +<number> - add static value
- -<number> - subtract static value
- \*<number> - multiply by static value
- /<number> - divide by static value

This is followed by a colon, and the encoded data.

For example, given the array of numbers:

1, 1, 1, 1, 2, 3, 4, 4, 4, 3, 2, 1, 0, 0, 0

One possible encoding would be:

"d,b0:1,,n2,1,n2,,, -1,n3,,"

Breaking this down:

Dec	Enc
1	1
1	blank = d0 = 1+0 = 1
1	n2 = previous value twice = d0 = 1+0 = 1
1	"
2	1 = d1 = 1+1 = 2
3	n2 = previous value twice = d1 = 2+1 = 3
4	" = d1 = 3+1 = 4
4	blank = d0 = 4+0 = 4
4	blank = d0 = 4+0 = 4

Dec	Enc
3	$-1 = d-1 = 4-1 = 3$
2	$n3 = \text{previous value thrice} = d-1 = 3-1 = 2$
1	$" = d-1 = 2-1 = 1$
0	$" = d-1 = 1-1 = 0$
0	$\text{blank} = d0 = 0+0 = 0$
0	$\text{blank} = d0 = 0+0 = 0$

---

Revision #2

Created 11 February 2026 20:09:19 by Nick Dobson

Updated 11 February 2026 21:37:25 by Nick Dobson