How To: Masking Social Security Numbers
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Challenge:
A local union administrator requested a listing of members working on a project. The request included the employee social security number. However, for security purposes, the union only wanted the last four digits of the social security number to display on the report.

Solution:
When is a number not a number? When it’s a social security number. Think of it more of a code than a number. It’s typically stored as text in construction databases. That’s because an individual’s number could begin with the number zero. Most database management systems would drop the leading zero if it was stored in a numeric format.

In addition, to economize on the size of the social security number field, many programs omit the dashes between the three parts of the social security number.

To accommodate the union request, we used Crystal Reports software to provide the union administrator with the information and formatting requested. Using the Crystal Reports subscript operator, we replaced the first two sets of social security number characters with the letter X.

Skills Required:
A. Experience using SAP Crystal Reports®.
B. Working with a data in table format.
C. Creating Crystal Reports formulas.
Try It!

1. Download the ConstructionWorkLT workbook.
2. Launch SAP Crystal Reports®

3. Use the Database Expert to connect to the ConstructionWorksLT database. Select the Employee_Master.
4. Insert the Social_Security column into the report. Preview the results.

5. Open the Formula Workshop.
6. Create a new Formula Field **Masked_SSN**.

7. On the **Operators** tree, expand the **Strings** folder, and then double click **Insert Empty String**. Enter the mask for the social security number **XXX-XX-XXXX**.
8. Insert the formula into the Details section of the report and preview the results.

9. Edit the Masked_SSN formula. Remove the final four X’s from the formula.
10. On the **Operators** tree, in the **Strings** folder, double-click **concatenate** \((x \& y)\).

11. On the **Report Fields** tree, double-click the **Social_Security** field.
12. On the **Operators** tree, in the **Strings** folder, double-click **subscript (x [y])**.

13. Edit the subscript to display the final four characters in the social security number **6 to 9**.
14. **Save** the changes made to the formula, and **close** the Formula Workshop.
15. Preview the results of the formula modification. Only the final four characters of the social security number display. The original Social_Security field may now be removed from the report.

**Recap**

What are often called numbers in the real world, aren’t numbers in a database. Social Security Numbers are a perfect example. In many programs, these pieces of information are stored as text fields.

In a Crystal Reports formula, text fields may be entered directly into the Editor provided they are surrounded with quotation marks (" ") or apostrophes (‘ ‘). Any character placed inside the quotation marks will display when the formula is inserted into the report.

You can combine literal text with text fields in the database using the concatenate operator. Concatenating adds together two string fields.

The substring operator in Crystal Reports is a simple way to select specific characters in a string. The operator allows you to create a mask or hide individual characters when the report is printed.