#### [sheetProtection](sheetProtection.docx) (Sheet Protection Options)

This collection expresses the [sheet](sheet.docx) [protection](protection.docx) options to enforce when the [sheet](sheet.docx) is protected.

[Example:

This example demonstrates that the [sheet](sheet.docx) is protected, objects and [scenarios](scenarios.docx) may be edited, and

<[sheetProtection](sheetProtection.docx) [sheet](sheet.docx)="1" objects="1" [scenarios](scenarios.docx)="1" formatCells="0"
 selectLockedCells="1"/>

end example]

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| --- |
| Parent Elements |
| [dialogsheet](dialogsheet.docx) (§); [worksheet](worksheet.docx) (§) |

|  |  |
| --- | --- |
| Attributes | Description |
| [autoFilter](autoFilter.docx) (AutoFilter Locked) | Autofilters are locked when the [sheet](sheet.docx) is protected.The possible values for this attribute are defined by the XML [Schema](Schema.docx) boolean datatype. |
| deleteColumns (Delete Columns Locked) | Deleting columns is locked when the [sheet](sheet.docx) is protected.The possible values for this attribute are defined by the XML [Schema](Schema.docx) boolean datatype. |
| deleteRows (Delete Rows Locked) | Deleting rows is locked when the [sheet](sheet.docx) is protected.The possible values for this attribute are defined by the XML [Schema](Schema.docx) boolean datatype. |
| formatCells (Format Cells Locked) | Formatting cells is locked when the [sheet](sheet.docx) is protected.The possible values for this attribute are defined by the XML [Schema](Schema.docx) boolean datatype. |
| formatColumns (Format Columns Locked) | Formatting columns is locked when the [sheet](sheet.docx) is protected.The possible values for this attribute are defined by the XML [Schema](Schema.docx) boolean datatype. |
| formatRows (Format Rows Locked) | Formatting rows is locked when the [sheet](sheet.docx) is protected.The possible values for this attribute are defined by the XML [Schema](Schema.docx) boolean datatype. |
| insertColumns (Insert Columns Locked) | Inserting columns is locked when the [sheet](sheet.docx) is protected.The possible values for this attribute are defined by the XML [Schema](Schema.docx) boolean datatype. |
| insertHyperlinks (Insert Hyperlinks Locked) | Inserting [hyperlinks](hyperlinks.docx) is locked when the [sheet](sheet.docx) is protected.The possible values for this attribute are defined by the XML [Schema](Schema.docx) boolean datatype. |
| insertRows (Insert Rows Locked) | Inserting rows is locked when the [sheet](sheet.docx) is protected.The possible values for this attribute are defined by the XML [Schema](Schema.docx) boolean datatype. |
| objects (Objects Locked) | Objects are locked when the [sheet](sheet.docx) is protected.The possible values for this attribute are defined by the XML [Schema](Schema.docx) boolean datatype. |
| password (Password) | Specifies the hash of the password required for editing this worksheet. This [protection](protection.docx) is optional and may be ignored by applications that choose not to support this functionality. The hash is generated from an 8-bit wide character. 16-bit Unicode characters must be converted down to 8 bits before the hash is computed, using the logic defined in the revisionsPassword attribute of §.The resulting value is hashed using the algorithm defined below.[Note: An example algorithm to hash the user input into the value stored is as follows:// Function Input:// szPassword: NULL terminated C-Style string// cchPassword: The number of characters in szPassword (not including the NULL terminator)WORD GetPasswordHash(const [CHAR](CHAR.docx) \*szPassword, int cchPassword) { WORD wPasswordHash; const [CHAR](CHAR.docx) \*pch;  wPasswordHash = 0;  if (cchPassword > 0) { pch = &szPassword[cchPassword]; while (pch-- != szPassword) { wPasswordHash = ((wPasswordHash >> 14) & 0x01) | ((wPasswordHash << 1) & 0x7fff); wPasswordHash ^= \*pch; } wPasswordHash ^= (0x8000 | ('N' << 8) | 'K'); }  return(wPasswordHash);}end note]The possible values for this attribute are defined by the [ST\_UnsignedShortHex](ST_UnsignedShortHex.docx) simple type (§). |
| pivotTables (Pivot [Tables](Tables.docx) Locked) | Pivot [tables](tables.docx) are locked when the [sheet](sheet.docx) is protected.The possible values for this attribute are defined by the XML [Schema](Schema.docx) boolean datatype. |
| [scenarios](scenarios.docx) (Scenarios Locked) | Scenarios are locked when the [sheet](sheet.docx) is protected.The possible values for this attribute are defined by the XML [Schema](Schema.docx) boolean datatype. |
| selectLockedCells (Select Locked Cells Locked) | Selection of locked cells is locked when the [sheet](sheet.docx) is protected.The possible values for this attribute are defined by the XML [Schema](Schema.docx) boolean datatype. |
| selectUnlockedCells (Select Unlocked Cells Locked) | Selection of unlocked cells is locked when the [sheet](sheet.docx) is protected.The possible values for this attribute are defined by the XML [Schema](Schema.docx) boolean datatype. |
| [sheet](sheet.docx) (Sheet Locked) | Sheet is locked when the [sheet](sheet.docx) is protected.The possible values for this attribute are defined by the XML [Schema](Schema.docx) boolean datatype. |
| sort (Sort Locked) | Sorting is locked when the [sheet](sheet.docx) is protected.The possible values for this attribute are defined by the XML [Schema](Schema.docx) boolean datatype. |

The following XML [Schema](Schema.docx) fragment defines the contents of this element:

<complexType [name](name.docx)="CT\_SheetProtection">

 <attribute [name](name.docx)="password" type="[ST\_UnsignedShortHex](ST_UnsignedShortHex.docx)" use="optional"/>

 <attribute name="[sheet](sheet.docx)" type="xsd:boolean" use="optional" default="false"/>

 <attribute name="objects" type="xsd:boolean" use="optional" default="false"/>

 <attribute name="[scenarios](scenarios.docx)" type="xsd:boolean" use="optional" default="false"/>

 <attribute name="formatCells" type="xsd:boolean" use="optional" default="true"/>

 <attribute name="formatColumns" type="xsd:boolean" use="optional" default="true"/>

 <attribute name="formatRows" type="xsd:boolean" use="optional" default="true"/>

 <attribute name="insertColumns" type="xsd:boolean" use="optional" default="true"/>

 <attribute name="insertRows" type="xsd:boolean" use="optional" default="true"/>

 <attribute name="insertHyperlinks" type="xsd:boolean" use="optional" default="true"/>

 <attribute name="deleteColumns" type="xsd:boolean" use="optional" default="true"/>

 <attribute name="deleteRows" type="xsd:boolean" use="optional" default="true"/>

 <attribute name="selectLockedCells" type="xsd:boolean" use="optional" default="false"/>

 <attribute name="sort" type="xsd:boolean" use="optional" default="true"/>

 <attribute name="[autoFilter](autoFilter.docx)" type="xsd:boolean" use="optional" default="true"/>

 <attribute name="pivotTables" type="xsd:boolean" use="optional" default="true"/>

 <attribute name="selectUnlockedCells" type="xsd:boolean" use="optional" default="false"/>

</complexType>