

# Security Identifiers - Win32 apps

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A [security identifier](#) (SID) is a unique value of variable length used to identify a [trustee](#). Each account has a unique SID issued by an authority, such as a Windows domain controller, and stored in a security database. Each time a user logs on, the system retrieves the SID for that user from the database and places it in the [access token](#) for that user. The system uses the SID in the access token to identify the user in all subsequent interactions with Windows security. When a SID has been used as the unique identifier for a user or group, it cannot ever be used again to identify another user or group.

Windows security uses SIDs in the following security elements:

- In [security descriptors](#) to identify the owner of an object and primary group
- In [access control entries](#), to identify the trustee for whom access is allowed, denied, or audited
- In [access tokens](#), to identify the user and the groups to which the user belongs

In addition to the uniquely created, domain-specific SIDs assigned to specific users and groups, there are [well-known SIDs](#) that identify generic groups and generic users. For example, the well-known SIDs, Everyone and World, identify a group that includes all users.

## Working with SIDs

Most applications never need to work with SIDs. Because the names of [well-known SIDs](#) can vary, you should use the functions to build the SID from predefined constants rather than using the name of the well-known SID. For example, the U.S. English version of the Windows operating system has a well-known SID named "BUILTIN\Administrators" that might have a different name on international versions of the system. For an example that builds a well-known SID, see [Searching for a SID in an Access Token in C++](#).

If you do need to work with SIDs, do not manipulate them directly. Instead, use the following functions:

Function	Description
<a href="#">AllocateAndInitializeSid</a>	Allocates and initializes a SID with the specified number of subauthorities.
<a href="#">ConvertSidToStringSid</a>	Converts a SID to a string format suitable for display, storage, or transport.
<a href="#">ConvertStringSidToSid</a>	Converts a string-format SID to a valid, functional SID.
<a href="#">CopySid</a>	Copies a source SID to a buffer.
<a href="#">EqualPrefixSid</a>	Tests two SID prefix values for equality. A SID prefix is the entire SID except for the last subauthority value.

Function	Description
<a href="#">EqualSid</a>	Tests two SIDs for equality. They must match exactly to be considered equal.
<a href="#">FreeSid</a>	Frees a previously allocated SID by using the <a href="#">AllocateAndInitializeSid</a> function.
<a href="#">GetLengthSid</a>	Retrieves the length of a SID.
<a href="#">GetSidIdentifierAuthority</a>	Retrieves a pointer to the identifier authority for a SID.
<a href="#">GetSidLengthRequired</a>	Retrieves the size of the buffer required to store a SID with a specified number of subauthorities.
<a href="#">GetSidSubAuthority</a>	Retrieves a pointer to a specified subauthority in a SID.
<a href="#">GetSidSubAuthorityCount</a>	Retrieves the number of subauthorities in a SID.
<a href="#">InitializeSid</a>	Initializes a <a href="#">SID</a> structure.
<a href="#">IsValidSid</a>	Tests the validity of a SID by verifying that the revision number is within a known range and that the number of subauthorities is less than the maximum.
<a href="#">LookupAccountName</a>	Retrieves the SID that corresponds to a specified account name.
<a href="#">LookupAccountSid</a>	Retrieves the account name that corresponds to a specified SID.

## Related content

[Well-known SIDs](#)

[Searching for a SID in an Access Token in C++](#)

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