

# 1. Check Items for Windows

Table 1. Check item list (Windows)

No.	Identifier				Status before check	Processing number	Information to be checked
	Operation identifier	Check-target identifier	Processing type identifier	Processing identifier			
1	Single environment check	Test for the Path to Shared Environment by HULFT Products	File open processing	Open a new file when no file exists	No file exists.	1	A file can be created and opened.
2			Byte range locking	Obtain an exclusive lock with the setting in which processing does not wait until the lock is obtained	The file is not locked.	7	A lock can be obtained.
3				Obtain a shared lock with the setting in which processing waits until the lock is obtained	The file is not locked.	8	A lock can be obtained.
4				Obtain an exclusive lock with the setting in which processing waits until the lock is obtained	The file is not locked.	9	A lock can be obtained.
5				Obtain an exclusive lock on an area where a shared lock is being placed, with the setting in which processing does not wait until the lock is obtained	Another process has already obtained a shared lock.	7	A lock cannot be obtained.
6				Obtain a shared lock on an area where a shared lock is being placed, with the setting in which processing waits until the lock is obtained	Another process has already obtained a shared lock.	8	A lock can be obtained.
7				Obtain an exclusive lock on an area where a shared lock is being placed, with the setting in which processing waits until the lock is obtained	Another process has already obtained a shared lock.	9	The processing waits until a lock can be obtained.
8				Obtain an exclusive lock on an area where an exclusive lock is being placed, with the setting in which processing does not wait until the lock is obtained	Another process has already obtained an exclusive lock.	7	A lock cannot be obtained.
9				Obtain a shared lock on an area where an exclusive lock is being placed, with the setting in which processing waits until the lock is obtained	Another process has already obtained an exclusive lock.	8	The processing waits until a lock can be obtained.

No.	Identifier				Status before check	Processing number	Information to be checked
	Operation identifier	Check-target identifier	Processing type identifier	Processing identifier			
10				Obtain an exclusive lock on an area where an exclusive lock is being placed, with the setting in which processing waits until the lock is obtained	Another process has already obtained an exclusive lock.	9	The processing waits until a lock can be obtained.
11				Release the shared lock	The process on this host has already obtained a shared lock.	10	The lock can be released.
12				Release the exclusive lock	The process on this host has already obtained an exclusive lock.	10	The lock can be released.
13				Obtain an exclusive lock on an area where a shared lock was released, with the setting in which processing does not wait until the lock is obtained	Another process has already released the shared lock.	7	A lock can be obtained.
14				Obtain an exclusive lock on an area where an exclusive lock was released, with the setting in which processing does not wait until the lock is obtained	Another process has already released the exclusive lock.	7	A lock can be obtained.
15		Test for the path to be checked	File open processing	Open a new file when no file exists	No file exists.	1	A file can be created and opened.
16				Open an existing file when no file exists	No file exists.	2	An error occurs because no file exists.
17				Open a new file when a file exists	A file exists.	1	An error occurs because a file already exists.
18				Open an existing file when a file exists	A file exists.	2	The file can be opened.
19			File read and write processing	File writing	The file is already open.	11	Data can be written.
20				File reading	The file is already open.	12	Data can be read.
21			Byte range locking	Obtain an exclusive lock with the setting in which processing does not wait until the lock is obtained	The file is not locked.	7	A lock can be obtained.
22				Obtain an exclusive lock with the setting in which processing waits until the lock is obtained	The file is not locked.	9	A lock can be obtained.
23				Obtain an exclusive lock on an area where an exclusive lock is being placed, with the setting in which processing does not wait until the lock is obtained	Another process has already obtained an exclusive lock.	7	A lock cannot be obtained.

No.	Identifier				Status before check	Processing number	Information to be checked
	Operation identifier	Check-target identifier	Processing type identifier	Processing identifier			
24				Obtain an exclusive lock on an area where an exclusive lock is being placed, with the setting in which processing waits until the lock is obtained	Another process has already obtained an exclusive lock.	9	The processing waits until a lock can be obtained.
25				Release the exclusive lock	The process on this host has already obtained an exclusive lock.	10	The lock can be released.
26				Obtain an exclusive lock on an area where an exclusive lock was released, with the setting in which processing does not wait until the lock is obtained	Another process has already released the exclusive lock.	7	A lock can be obtained.
27			File deletion processing	Delete a file created by the process on this host	The process on this host has already created a file.	13	The file can be deleted.
28	Mutual environment check	Test for the Path to Shared Environment by HULFT Products	File open processing	Open a file created by another process	Another process has already created a file.	6	The file can be opened.
29			Byte range locking	Obtain an exclusive lock on an area where a shared lock is being placed, with the setting in which processing does not wait until the lock is obtained	Another process has already obtained a shared lock.	7	A lock cannot be obtained.
30				Obtain a shared lock on an area where a shared lock is being placed, with the setting in which processing waits until the lock is obtained	Another process has already obtained a shared lock.	8	A lock can be obtained.
31				Obtain an exclusive lock on an area where a shared lock is being placed, with the setting in which processing waits until the lock is obtained	Another process has already obtained a shared lock.	9	The processing waits until a lock can be obtained.
32				Obtain an exclusive lock on an area where an exclusive lock is being placed, with the setting in which processing does not wait until the lock is obtained	Another process has already obtained an exclusive lock.	7	A lock cannot be obtained.

No.	Identifier				Status before check	Processing number	Information to be checked
	Operation identifier	Check-target identifier	Processing type identifier	Processing identifier			
33				Obtain a shared lock on an area where an exclusive lock is being placed, with the setting in which processing waits until the lock is obtained	Another process has already obtained an exclusive lock.	8	The processing waits until a lock can be obtained.
34				Obtain an exclusive lock on an area where an exclusive lock is being placed, with the setting in which processing waits until the lock is obtained	Another process has already obtained an exclusive lock.	9	The processing waits until a lock can be obtained.
35				Obtain an exclusive lock on an area where a shared lock was released, with the setting in which processing does not wait until the lock is obtained	Another process has already released the shared lock.	7	A lock can be obtained.
36				Obtain an exclusive lock on an area where an exclusive lock was released, with the setting in which processing does not wait until the lock is obtained	Another process has already released the exclusive lock.	7	A lock can be obtained.
37		Test for the path to be checked	File open processing	Open a file created by another process	Another process has already created a file.	6	The file can be opened.
38			Byte range locking	Obtain an exclusive lock on an area where an exclusive lock is being placed, with the setting in which processing does not wait until the lock is obtained	Another process has already obtained an exclusive lock.	7	A lock cannot be obtained.
39				Obtain an exclusive lock on an area where an exclusive lock is being placed, with the setting in which processing waits until the lock is obtained	Another process has already obtained an exclusive lock.	7	The processing waits until a lock can be obtained.
40				Obtain an exclusive lock on an area where an exclusive lock was released, with the setting in which processing does not wait until the lock is obtained	Another process has already released the exclusive lock.	7	A lock can be obtained.
41			File deletion processing	Delete a file created by another process	Another process has already created a file.	13	The file can be deleted.

No.	Identifier				Status before check	Processing number	Information to be checked
	Operation identifier	Check-target identifier	Processing type identifier	Processing identifier			
42	External application linkage check	Test for the file to be checked	File open processing	Open, from an external application, a file created by the tool	A file exists that was created by the tool and that is to be checked.	--	The file that was created by the tool and that is to be checked can be opened from an external application.
43				Open, from the tool with read permissions, a file created by an external application	The file to be checked has already been created by an external application (and the file is closed).	3	The tool can open the file to be checked.
44				Open, from the tool with read and write permissions, a file created by an external application	The file to be checked has already been created by an external application (and the file is closed).	4	The tool can open the file to be checked.
45			Sharing mode	Open, from an external application, the file that is being opened by the tool with the setting in which the file is not shared	The file that was created by an external application and that is to be checked has already been opened by the tool with the setting in which the file is not shared.	--	The file to be checked cannot be opened from an external application.
46				Open, from the tool with the setting in which a file is not shared, the file that was opened by an external application	The file to be checked has already been opened by the external application.	5	The tool cannot open the file to be checked.

Note: For details on the contents of the processing that corresponds to each processing number, see *Table 2. List of used functions (Windows)*.

Table 2. List of used functions (Windows)

Processing performed by the tool	Processing number	Used function	Argument related to the operation to be performed		
File open processing			Access mode (dwDesiredAccess)	Sharing mode (dwShareMode)	Creation method (dwCreationDisposition)
Create and open a file if no file exists	1	CreateFile	GENERIC_READ   GENERIC_WRITE	FILE_SHARE_READ   FILE_SHARE_WRITE	CREATE_NEW
Open a file if a file exists	2		GENERIC_READ   GENERIC_WRITE	FILE_SHARE_READ   FILE_SHARE_WRITE	OPEN_EXISTING
Open a file with read permissions	3		GENERIC_READ	FILE_SHARE_READ   FILE_SHARE_WRITE	OPEN_EXISTING
Open a file with read and write permissions	4		GENERIC_READ   GENERIC_WRITE	FILE_SHARE_READ   FILE_SHARE_WRITE	OPEN_EXISTING
Open a file with the setting in which the file is not shared	5		GENERIC_READ   GENERIC_WRITE	0	OPEN_EXISTING
Other file open processing	6		GENERIC_READ   GENERIC_WRITE	FILE_SHARE_READ   FILE_SHARE_WRITE	OPEN_ALWAYS

Processing performed by the tool	Processing number	Used function	Argument related to the operation to be performed
Byte range lock acquisition processing			Lock option (dwFlags)
Obtain an exclusive lock with the setting in which processing does not wait until the lock is obtained	7	LockFileEx	LOCKFILE_FAIL_IMMEDIATELY   LOCKFILE_EXCLUSIVE_LOCK
Obtain a shared lock with the setting in which processing waits until the lock is obtained	8		LOCKFILE_FAIL_IMMEDIATELY
Obtain an exclusive lock with the setting in which processing waits until the lock is obtained	9		LOCKFILE_EXCLUSIVE_LOCK
Byte range lock release processing			--
Release the lock	10	UnlockFileEx	
File read and write processing			--
Write data to a file	11	WriteFile	
Read data from a file	12	ReadFile	
File deletion processing			--
Delete a file	13	DeleteFile	

## 2. Check Items for Linux

Table 3. Check item list (Linux)

No.	Identifier				Status before check	Processing number	Information to be checked
	Operation identifier	Check-target identifier	Processing type identifier	Processing identifier			
1	Single environment check	Test for the Path to Shared Environment by HULFT Products	File open processing	Open a new file when no file exists	No file exists.	1	A file can be created and opened.
2			Byte range locking	Obtain an exclusive lock with the setting in which processing does not wait until the lock is obtained	The file is not locked.	6	A lock can be obtained.
3				Obtain a shared lock with the setting in which processing waits until the lock is obtained	The file is not locked.	7	A lock can be obtained.
4				Obtain an exclusive lock with the setting in which processing waits until the lock is obtained	The file is not locked.	8	A lock can be obtained.
5				Obtain an exclusive lock on an area where a shared lock is being placed, with the setting in which processing does not wait until the lock is obtained	Another process has already obtained a shared lock.	6	A lock cannot be obtained.
6				Obtain a shared lock on an area where a shared lock is being placed, with the setting in which processing waits until the lock is obtained	Another process has already obtained a shared lock.	7	A lock can be obtained.
7				Obtain an exclusive lock on an area where a shared lock is being placed, with the setting in which processing waits until the lock is obtained	Another process has already obtained a shared lock.	8	The processing waits until a lock can be obtained.
8				Obtain an exclusive lock on an area where an exclusive lock is being placed, with the setting in which processing does not wait until the lock is obtained	Another process has already obtained an exclusive lock.	6	A lock cannot be obtained.
9				Obtain a shared lock on an area where an exclusive lock is being placed, with the setting in which processing waits until the lock is obtained	Another process has already obtained an exclusive lock.	7	The processing waits until a lock can be obtained.

No.	Identifier				Status before check	Processing number	Information to be checked
	Operation identifier	Check-target identifier	Processing type identifier	Processing identifier			
10				Obtain an exclusive lock on an area where an exclusive lock is being placed, with the setting in which processing waits until the lock is obtained	Another process has already obtained an exclusive lock.	8	The processing waits until a lock can be obtained.
11				Release the shared lock	The process on this host has already obtained a shared lock.	9	The lock can be released.
12				Release the exclusive lock	The process on this host has already obtained an exclusive lock.	9	The lock can be released.
13				Obtain an exclusive lock on an area where a shared lock was released, with the setting in which processing does not wait until the lock is obtained	Another process has already released the shared lock.	6	A lock can be obtained.
14				Obtain an exclusive lock on an area where an exclusive lock was released, with the setting in which processing does not wait until the lock is obtained	Another process has already released the exclusive lock.	6	A lock can be obtained.
15		Test for the path to be checked	File open processing	Open a new file when no file exists	No file exists.	1	A file can be created and opened.
16				Open an existing file when no file exists	No file exists.	2	An error occurs because no file exists.
17				Open an existing file with read permissions when a file exists	A file exists.	2	The file can be opened.
18				Open an existing file with write permissions when a file exists	A file exists.	3	The file can be opened.
19				Open an existing file with read and write permissions when a file exists	A file exists.	4	The file can be opened.
20				Change the owner and owner group of an existing file	A file exists.	5	The owner and owner group of the file can be changed.
21			Link creation processing	Create a link with the file name that does not exist	A file to which you want to create a link does not exist.	14	The link can be created.
22				Create a link with the file name that exists	A file to which you want to create a link exists.	14	An error occurs because a link cannot be created.
23			File read and write processing	File writing	The file is already open.	12	Data can be written.
24				File reading	The file is already open.	13	Data can be read.



No.	Identifier				Status before check	Processing number	Information to be checked
	Operation identifier	Check-target identifier	Processing type identifier	Processing identifier			
25			Byte range locking	Obtain an exclusive lock with the setting in which processing does not wait until the lock is obtained	The file is not locked.	6	A lock can be obtained.
26				Obtain an exclusive lock with the setting in which processing waits until the lock is obtained	The file is not locked.	8	A lock can be obtained.
27				Obtain an exclusive lock on an area where an exclusive lock is being placed, with the setting in which processing does not wait until the lock is obtained	Another process has already obtained an exclusive lock.	6	A lock cannot be obtained.
28				Obtain an exclusive lock on an area where an exclusive lock is being placed, with the setting in which processing waits until the lock is obtained	Another process has already obtained an exclusive lock.	8	The processing waits until a lock can be obtained.
29				Release the exclusive lock	The process on this host has already obtained an exclusive lock.	9	The lock can be released.
30				Obtain an exclusive lock on an area where an exclusive lock was released, with the setting in which processing does not wait until the lock is obtained	Another process has already released the exclusive lock.	6	A lock can be obtained.
31			File deletion processing	Delete a file created by the process on this host	The process on this host has already created a file.	15	The file can be deleted.
32	Mutual environment check	Test for the Path to Shared Environment by HULFT Products	File open processing	Open a file created by another process	Another process has already created a file.	4	The file can be opened.
33			Byte range locking	Obtain an exclusive lock on an area where a shared lock is being placed, with the setting in which processing does not wait until the lock is obtained	Another process has already obtained a shared lock.	6	A lock cannot be obtained.
34				Obtain a shared lock on an area where a shared lock is being placed, with the setting in which processing waits until the lock is obtained	Another process has already obtained a shared lock.	7	A lock can be obtained.

No.	Identifier				Status before check	Processing number	Information to be checked
	Operation identifier	Check-target identifier	Processing type identifier	Processing identifier			
35				Obtain an exclusive lock on an area where a shared lock is being placed, with the setting in which processing waits until the lock is obtained	Another process has already obtained a shared lock.	8	The processing waits until a lock can be obtained.
36				Obtain an exclusive lock on an area where an exclusive lock is being placed, with the setting in which processing does not wait until the lock is obtained	Another process has already obtained an exclusive lock.	6	A lock cannot be obtained.
37				Obtain a shared lock on an area where an exclusive lock is being placed, with the setting in which processing waits until the lock is obtained	Another process has already obtained an exclusive lock.	7	The processing waits until a lock can be obtained.
38				Obtain an exclusive lock on an area where an exclusive lock is being placed, with the setting in which processing waits until the lock is obtained	Another process has already obtained an exclusive lock.	8	The processing waits until a lock can be obtained.
39				Obtain an exclusive lock on an area where a shared lock was released, with the setting in which processing does not wait until the lock is obtained	Another process has already released the shared lock.	6	A lock can be obtained.
40				Obtain an exclusive lock on an area where an exclusive lock was released, with the setting in which processing does not wait until the lock is obtained	Another process has already released the exclusive lock.	6	A lock can be obtained.
41		Test for the path to be checked	File open processing	Open a file created by another process	Another process has already created a file.	4	The file can be opened.
42				Change the owner and owner group of a file created by another process	A file exists.	5	The owner and owner group of the file can be changed.
43			Byte range locking	Obtain an exclusive lock on an area where an exclusive lock is being placed, with the setting in which processing does not wait until the lock is obtained	Another process has already obtained an exclusive lock.	6	A lock cannot be obtained.

No.	Identifier				Status before check	Processing number	Information to be checked
	Operation identifier	Check-target identifier	Processing type identifier	Processing identifier			
44				Obtain an exclusive lock on an area where an exclusive lock is being placed, with the setting in which processing waits until the lock is obtained	Another process has already obtained an exclusive lock.	7	The processing waits until a lock can be obtained.
45				Obtain an exclusive lock on an area where an exclusive lock was released, with the setting in which processing does not wait until the lock is obtained	Another process has already released the exclusive lock.	6	A lock can be obtained.
46			File deletion processing	Delete a file created by another process	Another process has already created a file.	15	The file can be deleted.
47	External application linkage check	Test for the file to be checked	File open processing	Open, from an external application, a file created by the tool	A file exists that was created by the tool and that is to be checked.	--	The file that was created by the tool and that is to be checked can be opened from an external application.
48				Open, from the tool with read permissions, a file created by an external application	The file to be checked has already been created by an external application (and the file is closed).	2	The tool can open the file to be checked.
49				Open, from the tool with write permissions, a file created by an external application	The file to be checked has already been created by an external application (and the file is closed).	3	The tool can open the file to be checked.
50				Open, from the tool with read and write permissions, a file created by an external application	The file to be checked has already been created by an external application (and the file is closed).	4	The tool can open the file to be checked.
51			Entire-file lock processing	Lock, from an external application, a file on which an exclusive lock has already been obtained by the tool	The tool has already obtained an exclusive lock of the file to be checked.	11	The external application cannot obtain a lock of the file to be checked.
52				Obtain an exclusive lock on a file for which a lock has already been obtained by an external application, from the tool with the setting in which processing waits until the lock is obtained	The external application has already obtained a lock of the file to be checked.	10	The tool waits until a lock of the file to be checked is obtained.

No.	Identifier				Status before check	Processing number	Information to be checked
	Operation identifier	Check-target identifier	Processing type identifier	Processing identifier			
53				Obtain an exclusive lock on a file for which a lock has already been obtained by an external application, from the tool with the setting in which processing does not wait until the lock is obtained	The external application has already obtained a lock of the file to be checked.	11	The tool cannot obtain a lock of the file to be checked.

Note: For details on the contents of the processing that corresponds to each processing number, see *Table 4. List of used functions (Linux)*.

Table 4. List of used functions (Linux)

Processing performed by the tool	Processing number	Used function	Argument related to the operation to be performed	
File open processing			flags	
Create and open a file if no file exists	1	open	O_CREAT O_WRONLY	
Open a file with read permissions	2		O_RDONLY	
Open a file with write permissions	3		O_WRONLY	
Open a file with read and write permissions	4		O_RDWR	
Change the owner and owner group of a file	5	chown	--	
Byte range locking			cmd	flock.l_type
Obtain an exclusive lock with the setting in which processing does not wait until the lock is obtained	6	fcntl	F_SETLK	F_WRLCK
Obtain a shared lock with the setting in which processing waits until the lock is obtained	7		F_SETLKW	F_RDLCK
Obtain an exclusive lock with the setting in which processing waits until the lock is obtained	8		F_SETLKW	F_WRLCK
Release the lock	9		F_SETLK	F_UNLCK
Entire-file lock processing			cmd	len
Obtain an exclusive lock with the setting in which processing waits until the lock is obtained	10	lockf	F_LOCK	0
Obtain an exclusive lock with the setting in which processing does not wait until the lock is obtained	11		F_TLOCK	0
File read and write processing			--	
Write data to a file	12	write		
Read data from a file	13	read		
Link creation processing			--	
Create a link	14	link		
File deletion processing			--	
Delete a file	15	unlink		