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# Commit 5f9af63

u3s committed on Sep 2, 2025

ssh: max\_handles option added to ssh\_sftpd  
- add max\_handles option and update tests (1000 by default)  
- remove sshd\_read\_file redundant testcase

master (#10157) · OTP-29.0-rc2 ··· OTP-27.3.4.3

1 parent [c388a2d](#) commit 5f9af63

2 files changed +79 -58 lines changed

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2 files changed +79 -58 lines changed

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lib/ssh/src/ssh\_sftpd.erl

```

↑... @@ -57,6 +57,7 @@ Specifies a channel process to handle an SFTP subsystem.
57 57      file_handler,          % atom() - callback module
58 58      file_state,            % state for the file callback module
59 59      max_files,            % integer >= 0 max no files sent during
                                READDIR
60 +      max_handles,          % integer > 0 - max number of file handles
60 61      options,              % from the subsystem declaration
61 62      handles                % list of open handles

```

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62 63          %% handle is either {<int>, directory, {Path, unread|eof}} or
      ↓
      ↑
@@ -86,6 +87,13 @@ Options:
86 87          limit. If supplied, the number of filenames returned to the SFTP client per
87 88          `REaddir` request is limited to at most the given value.
88 89
90 + - **`max_handles`** - The default value is `1000`. Positive integer
91 + value represents the maximum number of file handles allowed for a
92 + connection.
93 +
94 + (Note: separate limitation might be also enforced by underlying
95 + operating system)
96 +
89 97 - **`root`** - Sets the SFTP root directory. Then the user cannot see any files
90 98 above this root. If, for example, the root directory is set to `/tmp`, then
91 99 the user sees this directory as `/.`. If the user then writes `cd /etc`, the
      ↕
@@ -98,6 +106,7 @@ Options:
98 106          Options :: [ {cwd, string()} |
99 107                      {file_handler, CbMod | {CbMod, FileState}} |
100 108                     {max_files, integer()} |
109 +                    {max_handles, integer()} |
101 110                     {root, string()} |
102 111                     {sftpd_vsn, integer()}
103 112                    ],
      ↓
      ↑
@@ -149,8 +158,12 @@ init(Options) ->
149 158          {Root0, State0}
150 159          end,
151 160          MaxLength = proplists:get_value(max_files, Options, 0),
161 +          MaxHandles = proplists:get_value(max_handles, Options, 1000),
152 162          Vsn = proplists:get_value(sftpd_vsn, Options, 5),
153 -          {ok, State#state{cwd = CWD, root = Root, max_files = MaxLength,
163 +          {ok, State#state{cwd = CWD,
164 +                          root = Root,
165 +                          max_files = MaxLength,
166 +                          max_handles = MaxHandles,
154 167          options = Options,
155 168          handles = [], pending = <<>,
156 169          xf = #ssh_xfer{vsn = Vsn, ext = []}}}.
      ↓
@@ -282,14 +295,16 @@ handle_op(?SSH_FXP_REALPATH, ReqId,

```

		↑	
282	295		end;
283	296		handle_op(?SSH_FXP_OPENDIR, ReqId,
284	297		<<?UINT32(RLen), RPath:RLen/binary>>,
285	-		State0 = #state{xf = #ssh_xfer{vsn = Vsn},
286	-		file_handler = FileMod, file_state = FS0}) ->
298	+		State0 = #state{xf = #ssh_xfer{vsn = Vsn},
299	+		file_handler = FileMod, file_state = FS0,
300	+		max_handles = MaxHandles}) ->
287	301		RelPath = unicode:characters_to_list(RPath),
288	302		AbsPath = relate_file_name(RelPath, State0),
289	303		
290	304		XF = State0#state.xf,
291	305		{IsDir, FS1} = FileMod:is_dir(AbsPath, FS0),
292	306		State1 = State0#state{file_state = FS1},
307	+		HandlesCnt = length(State0#state.handles),
293	308		case IsDir of
294	309		false when Vsn > 5 ->
295	310		ssh_xfer:xf_send_status(XF, ReqId, ?SSH_FX_NOT_A_DIRECTORY,
		↕	@@ -299,8 +314,12 @@ handle_op(?SSH_FXP_OPENDIR, ReqId,
299	314		ssh_xfer:xf_send_status(XF, ReqId, ?SSH_FX_FAILURE,
300	315		"Not a directory"),
301	316		State1;
302	-		true ->
303	-		add_handle(State1, XF, ReqId, directory, {RelPath,unread})
317	+		true when HandlesCnt < MaxHandles ->
318	+		add_handle(State1, XF, ReqId, directory, {RelPath,unread});
319	+		true ->
320	+		ssh_xfer:xf_send_status(XF, ReqId, ?SSH_FX_FAILURE,
321	+		"max_handles limit reached"),
322	+		State1
304	323		end;
305	324		handle_op(?SSH_FXP_READDIR, ReqId,
306	325		<<?UINT32(HLen), BinHandle:HLen/binary>>,
		↓	@@ -751,7 +770,9 @@ open(Vsn, ReqId, Data, State) when Vsn >= 4 ->
		↑	
751	770		do_open(ReqId, State, Path, Flags).
752	771		
753	772		do_open(ReqId, State0, Path, Flags) ->

```

754 - #state{file_handler = FileMod, file_state = FS0, xf = #ssh_xfer{vsn = Vsn}}
      = State0,
773 + #state{file_handler = FileMod, file_state = FS0, xf = #ssh_xfer{vsn = Vsn},
774 +     max_handles = MaxHandles} = State0,
775 +     HandlesCnt = length(State0#state.handles),
755 776     AbsPath = relate_file_name(Path, State0),
756 777     {IsDir, _FS1} = FileMod:is_dir(AbsPath, FS0),
757 778     case IsDir of
@@ -763,7 +784,7 @@ do_open(ReqId, State0, Path, Flags) ->
763 784         ssh_xfer:xf_send_status(State0#state.xf, ReqId,
764 785             ?SSH_FX_FAILURE, "File is a directory"),
765 786         State0;
766 -     false ->
787 +     false when HandlesCnt < MaxHandles ->
767 788         OpenFlags = [binary | Flags],
768 789         {Res, FS1} = FileMod:open(AbsPath, OpenFlags, FS0),
769 790         State1 = State0#state{file_state = FS1},
@@ -774,7 +795,11 @@ do_open(ReqId, State0, Path, Flags) ->
774 795         ssh_xfer:xf_send_status(State1#state.xf, ReqId,
775 796             ssh_xfer:encode_erlang_status(Error)),
776 797         State1
777 -     end
798 +     end;
799 +     false ->
800 +     ssh_xfer:xf_send_status(State0#state.xf, ReqId,
801 +         ?SSH_FX_FAILURE, "max_handles limit reached"),
802 +     State0
778 803     end.
779 804
780 805     %% resolve all symlinks in a path

```

lib/ssh/test/ssh\_sftpd\_SUITE.erl

...

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@@ -51,7 +51,6 @@
51 51     retrieve_attributes/1,
52 52     root_with_cwd/1,
53 53     set_attributes/1,
54 -     sshd_read_file/1,
55 54     ver3_open_flags/1,
56 55     ver3_rename/1,

```

57	56	ver6_basic/1,
		@@ -71,9 +70,8 @@
71	70	-define(SSH_TIMEOUT, 5000).
72	71	-define(REG_ATTRS, <<0,0,0,1>>).
73	72	-define(UNIX_EPOCH, 62167219200).
74		-
75		- -define(is_set(F, Bits),
76		- ((F) band (Bits)) == (F)).
	73	+ -define(MAX_HANDLES, 10).
	74	+ -define(is_set(F, Bits), ((F) band (Bits)) == (F)).
77	75	
78	76	%%-----
79	77	%% Common Test interface functions -----
		@@ -97,8 +95,7 @@ all() ->
97	95	links,
98	96	ver3_rename,
99	97	ver3_open_flags,
100		- relpath,
101		- sshd_read_file,
	98	+ relpath,
102	99	ver6_basic,
103	100	access_outside_root,
104	101	root_with_cwd,
		@@ -180,7 +177,7 @@ init_per_testcase(TestCase, Config) ->
180	177	{sftpd_vsn, 6}}],
181	178	ssh:daemon(0, [{subsystems, SubSystems} Options]);
182	179	_ ->
183		- SubSystems = [ssh_sftpd:subsystem_spec([])],
	180	+ SubSystems = [ssh_sftpd:subsystem_spec([max_handles, ? MAX_HANDLES])],
184	181	ssh:daemon(0, [{subsystems, SubSystems} Options])
185	182	end,
186	183	
		@@ -316,33 +313,44 @@ open_close_dir(Config) when is_list(Config) ->
316	313	read_file(Config) when is_list(Config) ->
317	314	PrivDir = proplists:get_value(priv_dir, Config),
318	315	FileName = filename:join(PrivDir, "test.txt"),
	316	+ {Cm, Channel} = proplists:get_value(sftp, Config),

```

317 +   [begin
318 +       R1 = req_id(),
319 +       {ok, <<?SSH_FXP_HANDLE, ?UINT32(R1), Handle/binary>>, _} =
320 +         open_file(FileName, Cm, Channel, R1, ?ACE4_READ_DATA bor ?
ACE4_READ_ATTRIBUTES,
321 +                 ?SSH_FXF_OPEN_EXISTING),
322 +       R2 = req_id(),
323 +       {ok, <<?SSH_FXP_DATA, ?UINT32(R2), ?UINT32(_Length), Data/binary>>,
_} =
324 +         read_file(Handle, 100, 0, Cm, Channel, R2),
325 +       {ok, Data} = file:read_file(FileName)
326 +     end || _I <- lists:seq(0, ?MAX_HANDLES-1)],
327 +   ReqId = req_id(),
328 +   {ok, <<?SSH_FXP_STATUS, ?UINT32(ReqId), ?UINT32(?SSH_FX_FAILURE),
329 +         ?UINT32(MsgLen), Msg:MsgLen/binary,
330 +         ?UINT32(LangTagLen), _LangTag:LangTagLen/binary>>, _} =
331 +     open_file(FileName, Cm, Channel, ReqId, ?ACE4_READ_DATA bor ?
ACE4_READ_ATTRIBUTES,
332 +             ?SSH_FXF_OPEN_EXISTING),
333 +     ct:log("Message: ~s", [Msg]),
334 +     ok.

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319 335

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320 -   ReqId = 0,
321 -   {Cm, Channel} = proplists:get_value(sftp, Config),
322 -
323 -   {ok, <<?SSH_FXP_HANDLE, ?UINT32(ReqId), Handle/binary>>, _} =
324 -     open_file(FileName, Cm, Channel, ReqId,
325 -             ?ACE4_READ_DATA bor ?ACE4_READ_ATTRIBUTES,
326 -             ?SSH_FXF_OPEN_EXISTING),
327 -
328 -   NewReqId = 1,
329 -
330 -   {ok, <<?SSH_FXP_DATA, ?UINT32(NewReqId), ?UINT32(_Length),
331 -         Data/binary>>, _} =
332 -     read_file(Handle, 100, 0, Cm, Channel, NewReqId),
333 -
334 -   {ok, Data} = file:read_file(FileName).
335 -
336 -   %%-----

```

337 336 read\_dir(Config) when is\_list(Config) ->

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338 337 PrivDir = proplists:get_value(priv_dir, Config),
339 338 {Cm, Channel} = proplists:get_value(sftp, Config),
340 - ReqId = 0,
341 - {ok, <<?SSH_FXP_HANDLE, ?UINT32(ReqId), Handle/binary>>, _} =
342 - open_dir(PrivDir, Cm, Channel, ReqId),
343 - ok = read_dir(Handle, Cm, Channel, ReqId).
339 + [begin
340 +     R1 = req_id(),
341 +     {ok, <<?SSH_FXP_HANDLE, ?UINT32(R1), Handle/binary>>, _} =
342 +         open_dir(PrivDir, Cm, Channel, R1),
343 +     R2 = req_id(),
344 +     ok = read_dir(Handle, Cm, Channel, R2)
345 +     end || _I <- lists:seq(0, ?MAX_HANDLES-1)],
346 + ReqId = req_id(),
347 + {ok, <<?SSH_FXP_STATUS, ?UINT32(ReqId), ?UINT32(?SSH_FX_FAILURE),
348 +     ?UINT32(MsgLen), Msg:MsgLen/binary,
349 +     ?UINT32(LangTagLen), _LangTag:LangTagLen/binary>>, _} =
350 +     open_dir(PrivDir, Cm, Channel, ReqId),
351 +     ct:log("Message: ~s", [Msg]),
352 +     ok.
344 353
345 - %%-----
346 354 write_file(Config) when is_list(Config) ->
347 355     PrivDir = proplists:get_value(priv_dir, Config),
348 356     FileName = filename:join(PrivDir, "test.txt"),
349 357     @@ -644,27 +652,6 @@ relpath(Config) when is_list(Config) ->
350 358     Root = Path
351 359     end.
352 360
353 361 %%-----
354 362 - sshd_read_file(Config) when is_list(Config) ->
355 363 -     PrivDir = proplists:get_value(priv_dir, Config),
356 364 -     FileName = filename:join(PrivDir, "test.txt"),
357 365 -
358 366 -     ReqId = 0,
359 367 -     {Cm, Channel} = proplists:get_value(sftp, Config),
360 368 -
361 369 -     {ok, <<?SSH_FXP_HANDLE, ?UINT32(ReqId), Handle/binary>>, _} =
362 370 -     open_file(FileName, Cm, Channel, ReqId),

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```

657 -             ?ACE4_READ_DATA bor ?ACE4_READ_ATTRIBUTES,
658 -             ?SSH_FXF_OPEN_EXISTING),
659 -
660 -     NewReqId = 1,
661 -
662 -     {ok, <<?SSH_FXP_DATA, ?UINT32(NewReqId), ?UINT32(_Length),
663 -     Data/binary>>, _} =
664 -     read_file(Handle, 100, 0, Cm, Channel, NewReqId),
665 -
666 -     {ok, Data} = file:read_file(FileName).
667 -     %%-----
668 655     ver6_basic(Config) when is_list(Config) ->
669 656         PrivDir = proplists:get_value(priv_dir, Config),
670 657         %FileName = filename:join(PrivDir, "test.txt"),
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1068 +
1069 + req_id() ->
1070 +     ReqId =
1071 +         case get(req_id) of
1072 +             undefined -> 0;
1073 +             I -> I
1074 +         end,
1075 +         put(req_id, ReqId + 1),
1076 +         ReqId.

```

## Comments 0